

# JOURNAL of the American Veterinary Medical Association

FORMERLY

**AMERICAN VETERINARY REVIEW**

(Original Official Organ U. S. Vet. Med. Assn.)

EDITED AND PUBLISHED FOR

The American Veterinary Medical Association

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THE JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION is issued the first of each month. Manuscripts and copy for insertion should be as nearly perfect as possible for the printer and should be received by the tenth of the preceding month to insure insertion in the next month's issue. Volumes begin in April and October.

Communications relating to publication, subscription, advertisements and remittances for the JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, as well as matters pertaining to the American Veterinary Medical Association and membership, should be sent to Dr. H. Preston Hoskins, Secretary-Editor, 735 Book Bldg., Detroit, Mich.

\$4.00 per annum

Foreign \$5.00; Canada \$4.25

Single Copies 40 cts. in U. S.

Entered as Second-Class Matter, March 15, 1923, at the Post Office at Detroit, Mich., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917; authorized October 26, 1918.



## Happy New Year!

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Vol. LXIV, N. S. Vol. 17

January, 1924

No. 4

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**A YEAR HAS PASSED**

Time passes quickly when pleasantly spent. It seems hardly possible that a year has rolled around since entering upon our new work. It has been a year of new experiences. There have been trials and tribulations, delays, set-backs, and unforeseen situations, but these are rapidly being forgotten as our affairs get into better shape and the road becomes smoother. We believe that by the time another year rolls around that every rattle and squeak will have entirely disappeared. Indications now point that way.

We would be remiss if a word of thanks were not spoken in behalf of those who have so materially assisted in getting things under way and keeping them going. We want to thank the former secretaries and former editors for their unstinted help; the officers and members of the Executive Board, for their suggestions and the encouragement they have given; the contributors of the articles which have enabled us to maintain the high standard of the JOURNAL established by our predecessors; our corps of abstractors, who have sifted current scientific periodicals for new material that is of interest to veterinarians; association secretaries who have supplied the splendid reports of their meetings; the members of our news-gathering staff,

who have sent in the hundreds of news items appearing from month to month; our advertisers for their support and cordial cooperation; and last but not least our two assistants, who have kept the machinery going while we have been away from the office.

Thanks to all of you. May the New Year have much in store for everybody.

### PLANS FOR DES MOINES

At the meeting of the Executive Board, in Chicago, December 4, Des Moines, Iowa, was officially designated as the meeting place for 1924. The dates for the convention were also selected—August 19-20-21-22.

If you will look at your calendar you will find that the opening date is a Tuesday. This is a departure from programs of recent years. There has been considerable of a demand for shortening our meetings to four days, coming especially from the practitioners. It was decided to try a four-day meeting this year, and to start on Tuesday.

Monday, August 18, will be set aside for meetings of the Executive Board and the various committees. It is hoped that members of those committees unable to complete their reports prior to the meeting will start a day early, gather in Des Moines the day before the meeting opens, complete their reports and have them ready to present when they are called for.

The program proper will be crowded into three days, Tuesday, Wednesday and Thursday. On Friday, August 22, we will be taken to Ames, for a visit to the Iowa State College, where entertainment will be provided for the ladies and a splendidly arranged clinic for the men.

The great Iowa State Fair opens on Saturday, August 23, and it is expected that a great many will want to take in this great attraction.

The officers of the several sections met in Chicago, December 6, and, with President Stange and Secretary Hoskins, went over plans for the literary program. It is planned to have the usual two sessions of the three sections, and one general session exclusively for the reading of papers on subjects in which all are interested.

Suggestions for the program are in order at any time. It is your Association. Let us hear from you.

Dr. Stange has appointed the following Local Committee on Arrangements: Dr. H. E. Bemis, Ames, Iowa, Chairman, with the following to assist him: Drs. H. D. Bergman, Ames, Iowa; E. R. Steel, Grundy Center, Iowa; John Patterson, Hedrick, Iowa; H. J. Shore, Fort Dodge, Iowa; R. D. Wall, P. Malcolm, W. J. Miller, C. W. Deming, and Col. J. H. Gould, all of Des Moines, Iowa.

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### A TEMPEST IN A TEAPOT

Thus is characterized the present situation with regard to high bacterial counts in milk, in a recent article<sup>1</sup> by Dr. Archibald R. Ward. There appear to be two main factors which have contributed to the perplexities of the present situation.

During recent years, more specifically during the Great War, dealers in pasteurized milk, as well as municipal health authorities, have been confronted with the problem of correctly interpreting high bacterial counts. We have all been led to associate high bacterial counts with slovenly milk-plant methods. However, in many instances, impartial investigations have failed to show any laxness in the methods of handling this high-count milk.

One of the main factors that appear to contribute to discordant results is undoubtedly the culture medium used in making the plates employed for estimating the bacterial counts of milk samples. Since the war, many laboratories have been employing various ingredients of American origin in the preparation of culture media, and as the matter now stands, instead of having one standard medium, we have several, the result of using ingredients openly known to vary in composition. For instance, a certain brand of commercial peptone used in the preparation of agar will afford a much more luxuriant growth of certain organisms than will some other brand of commercial peptone. This variation in bacterial counts, made from the same sample of milk but on different batches of culture media, has been brought out by J. W. Yates, Director, Food and Dairy Division, of the Hospital and Health Board, of Kansas City, Mo., in a paper read before the American Public Health Association at Boston.

The other factor, heat-loving bacteria, is brought out by the

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<sup>1</sup> Dairy Products Merchandising, 1 (7), November 1923.



same investigator, working with Dr. J. J. Glover, Veterinarian, of the Hospital and Health Board, Kansas City, in a paper recently read before the International Association of Dairy and Milk Inspectors at Washington, and this paper is really epoch-making.

Briefly stated, it would appear that there are certain organisms which thrive at pasteurization temperatures (140 to 145° F.). When a given sample of milk contains any of these organisms, the longer it is held at the pasteurization temperature the longer these organisms will have to grow. Consequently when the bacterial count of the sample is made after heating several hours, paradoxical as it may seem without a knowledge of these facts, the greater the number of organisms will be. In a sample of milk held at pasteurizing temperature for three hours, or in the product of a pasteurizing apparatus that has been in operation for this time or longer, the count of the pasteurized milk may be greater than that of the raw milk. There are at least twelve kinds of these thermophilic organisms known to bacteriologists, these growing best at temperatures as high as 172° F. Fortunately, none of these organisms is pathogenic.

After thoroughly discussing these two very important questions of culture media and thermophilic organisms, Dr. Ward concludes as follows: "Milk which is rich, clean, has been properly pasteurized so as to be safe with regard to pathogenic germs, and keeps sweet and in satisfactory condition during the period required by the consumer is good milk regardless of what may be its bacterial count."

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### IT PAYS BIG DIVIDENDS

At a recent meeting of a local veterinary association, one of the members demonstrated an operation which he had seen performed at the clinic of the A. V. M. A. meeting held in St. Louis in 1922. The operation in question was the one performed by Dr. T. H. Ferguson, of Lake Geneva, Wisconsin, for the relief of obstruction of the teat canal. The member in question stated that during the period of a year, which had elapsed following the St. Louis meeting, he had performed this operation on approximately forty cows, with splendid success in every case. The condition, which had previously been one of the "bug-bears" of a large dairy practice, no longer offered any difficulties

so far as a remedial operation was concerned. This little incident is recited merely for the purpose of refuting any statements to the effect that it does not repay a practitioner to attend our national meetings.

### EXECUTIVE BOARD ELECTION

This year an Executive Board election will be held in District No. 4, consisting of Kentucky, West Virginia, Virginia, Maryland, District of Columbia, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida, Cuba, and South America. The term of office for the present member of the Executive Board from this district will expire at the close of the 1924 meeting in Des Moines; and the election to be held is for the purpose of electing a member to fill this vacancy. Nominating ballots will be mailed shortly after January 1st, to all members of the Association located in District No. 4, providing their dues for the current year have been paid.

### COMING VETERINARY MEETINGS

New York City, Veterinary Medical Association of. Academy of Medicine, 17 W. 43rd St., New York City. Jan. 2, 1924.

Dr. C. G. Rohrer, Secretary, 40 W. 61st St., New York, N. Y.  
California Veterinary Practitioners' Week, University of. Jan. 7-10, 1924. University Farm, Davis, Cal.

Indiana Veterinary Medical Association. Claypool Hotel, Indianapolis, Ind. Jan. 8-9-10, 1924. Dr. R. H. Boyd, Secretary, 446 E. 10th St., Indianapolis, Ind.

Pennsylvania Annual Conference for Veterinarians, University of. Philadelphia, Pa. Jan. 8-9, 1924. Dr. Louis A. Klein, Dean, 39th St. and Woodland Ave., Philadelphia, Pa.

New Jersey, Veterinary Medical Association of. Newark, N. J. Jan. 10, 1924. Dr. P. B. Silvester, Secretary, Princeton, N. J.

Ohio State Veterinary Medical Association. Deshler Hotel, Columbus, Ohio. Jan. 9-10-11, 1924. Dr. Harry T. Moss, Secretary, 640 S. Main St., Dayton, Ohio.

Cornell Veterinary Conference, Ithaca, N. Y. January 10-11, 1924. Dr. V. A. Moore, Dean, N. Y. State Veterinary College, Ithaca, N. Y.

Virginia State Veterinary Medical Association. Richmond, Va. Jan. 10-11, 1924. Dr. Geo. C. Faville, Secretary, Hampton, Va.

Iowa Veterinary Association. Hotel Savery, Des Moines, Iowa. Jan. 15-16, 1924. Dr. E. R. Steel, Secretary, Grundy Center, Iowa.

Iowa Practitioners' Short Course. Iowa State College, Ames, Iowa. Jan. 17-18, 1924. Dr. C. H. Stange, Dean, Ames, Iowa.

Oklahoma State Veterinary Medical Association. Huckins Hotel, Oklahoma City, Okla. Jan. 16-17, 1924. Dr. L. B. Barber, Secretary, Live Stock Exchange Bldg., Oklahoma City, Okla.

Minnesota State Veterinary Medical Association. Ryan Hotel, St. Paul, Minn. Jan. 16-17, 1924. Dr. C. P. Fitch, Secretary, University Farm, St. Paul, Minn.

Pennsylvania Veterinary Medical Association and Allied Agricultural Association Conference. Harrisburg, Pa. Jan. 22, 1924. Dr. H. R. Church, Secretary, Harrisburg, Pa.

Massachusetts Veterinary Association. American House, Boston, Mass. Jan. 23, 1924. Dr. C. H. Playdon, Secretary, Reading, Mass.

Colorado Veterinary Medical Association. Denver, Colo. Jan. 23-24, 1924. Dr. I. E. Newsom, Secretary, Fort Collins, Colo.

South Carolina Association of Veterinarians. Jefferson Hotel, Columbia, S. C. Jan. 28, 1924. Dr. M. R. Blackstock, Secretary, Spartanburg, S. C.

Michigan Agricultural College Short Course for Veterinarians. East Lansing, Mich. Jan. 28-Feb. 1, 1924. Dr. Ward Giltner, Dean, East Lansing, Mich.

Wisconsin Veterinary Medical Association and Veterinary Short Course. College of Agriculture, Madison, Wis. Jan. 29-30-31 and Feb. 1, 1924. Dr. O. H. Eliason, Secretary, Madison, Wis.

Kentucky Veterinary Medical Association. Hotel Latham. Hopkinsville, Ky. Feb. 6-7, 1924. Dr. J. A. Winkler, Secretary, Newport, Ky.

Kansas Veterinary Medical Association and the Third Annual Conference of Kansas Veterinarians. K. S. A. C., Manhattan, Kans. Feb. 6-7-8, 1924. Dr. I. J. Pierson, Secretary, Lawrence, Kans.

Missouri Valley Veterinary Association. Kansas City, Mo. Feb. 19-20-21, 1924. Dr. E. R. Steel, Secretary, Grundy Center, Iowa.

## ANESTHESIA, GENERAL AND LOCAL\*

By H. E. BEMIS, W. F. GUARD and C. H. COVAULT

*Iowa State College, Ames, Iowa*

According to Flagg<sup>1</sup> the history of anesthesia may be broadly divided into two periods: The pre-anesthetic period and the anesthetic period. The pre-anesthetic period ends and the anesthetic period begins with the discovery of ether in 1842 and its general introduction in 1846.

### THE PRE-ANESTHETIC PERIOD

This period includes the centuries previous to 1842. In studying the literature of this early period, one is impressed with the many references made to assuaging and allaying pain. One of the early references to this is made by Homer, in the *Odyssey*.

Again, in the 16th century, DuBartus,<sup>2</sup> a poet, says in one of his writings:

*"Even as a surgeon minding off to cut  
Some cureless limb, before in use he put  
His violent engines on the vicious member,  
Bringeth his patient in a senseless slumber,  
And griefless then, guided by use and art  
To save the whole, cuts off the affected part."*

A similar passage<sup>2</sup> occurs in a play by Thomas Middleton, the Elizabethan poet, quoted by Dr. Walsh

*"I'll imitate the pities of old surgeons  
To this lost limb, who, ere they show their art  
Cast one asleep, then cut the diseased part."*

Early in the seventeenth century, Shakespeare<sup>2</sup> makes Cornelius, a court physician, prescribe a drug which

*"Will stupify and dull the sense awhile;  
. . . . but there is  
No danger in what show of death it makes,  
To be more fresh, reviving."*

From this ancient history, viewed in the light of our present knowledge, we see an ever-crying need and perhaps a prophecy of some of our latest attainments in general anesthesia.<sup>†</sup>

\*Presented at the sixtieth annual meeting of the American Veterinary Medical Association, Montreal, Canada, August 27-31, 1923.

†For more complete history see bibliography.

### ANESTHETIC PERIOD

This period was born in the year 1842, and the names of such investigators as William T. G. Mortem, Crawford W. Long, C. T. Jackson, H. Wells, and others, are permanently recorded as having taken an active part in establishing the use of ether as an anesthetic in surgery. Local anesthesia, though studied several years during the middle of the 19th century by such men as Schurzir, Godeke, Bennett, Koller, and others, was not well established until Von Anrep, in 1879, made rather a thorough investigation of cocaine, using a weak solution under the skin of his arm. The discovery of the hypodermic syringe by F. Rynd,<sup>4</sup> of Edinburgh, in 1845, made possible a more extensive study and application of local anesthetics.† Since the birth of these two methods of relieving pain there has been so much progress and so many separate volumes written upon both general and local anesthesia, that one cannot be expected to present a brief history that would be adequate for such an important subject.

### IMPORTANCE OF ANESTHESIA

We need not dwell upon the importance of anesthesia since it is universally admitted that practically all surgical procedure, if not progress, in *human* surgery at least, can be directly or indirectly credited to anesthesia. We can, as a profession, very profitably take an inventory and compare our attainments and present status in the field of veterinary surgery to that of human surgery. We need only to call attention to such surgical contributions as those of Keen, Warbasse, Doyen, etc., and such standard books on anesthesia as Braun, translated by Shield;<sup>4</sup> Hewitt's "Anaesthetics and Their Administration," "The Art of Anaesthesia," by Flagg; "Regional Anaesthesia, Its Technical and Clinical Application," Labat;<sup>5</sup> "Local Anaesthesia," Allen; "Anoci-association," Crile and Lower; and numerous others, to appreciate how much we have actually progressed.

In contrast, we wish to call your attention to the living existence of a very familiar scene to most every veterinary practitioner who attends clinics, we dare say, at practically any state, sectional, or even national association meeting. We talk, preach, demonstrate and unanimously agree upon the finer points so important to every-day practice and progress, and then call upon and permit someone of our number to step forth

†For complete history of local anaesthesia refer to Local Anaesthesia, by Allen; Local Anaesthesia, by Braun and Shields; The Art of Anaesthesia, by Flagg.



boldly in the arena as of old, and apply his Stone Age method of acrobatic butchery without fear and trembling, for the helpless patient is so securely confined and otherwise tortured, that the hero brandishing his modern array of instruments is at no time in any degree of danger. By permitting such crude and inhumane demonstrations at our meetings, we are encouraging the general practice of such methods when we should be using every means to suppress them.

Is it any wonder that organizations, such as our humane societies, are agitating legislation which would make anesthetics compulsory in veterinary surgery? Would it not be elevating our standards to lead and enlighten the general public in regard to such matters rather than be criticized and forced by laymen? Broadly speaking, there is no part of veterinary practice any more important to the practitioners' success than his surgery. It is in this phase of practice that modern methods and procedure are most keenly looked for by the laymen, and constitute an important index to the practitioner's rating as a professional man. The fact that surgery has been pushed into the background, and even practically eliminated by some, is no justification for ignoring the truth of the foregoing statement.

As an example, we wish to relate the following incident: A breeder of one of our best breeds of swine reported at the clinic one day with a valuable pig affected with a small umbilical hernia, giving the following history: A short time previously he had taken the pig to his local veterinarian for advice concerning a swelling in the region of the umbilicus. After making sure that an abscess was present, the veterinarian picked up a knife, and, without any preliminary steps whatsoever, opened the enlargement and liberated the pus. The owner became so alarmed that he hurried home, prepared some antiseptic solution in a clean pan, and, as thoroughly as he knew how, cleansed the abdominal wall and abscess cavity, after which he painted the process with tincture of iodine. Healing took place in a short time, but another swelling developed, and he decided to take the pig where he thought it would get modern treatment. The above history was not given in detail until after a definite diagnosis of umbilical hernia had been made and the operation had been completed to the entire satisfaction of the owner. He remarked that he now knew it was possible for veterinarians to perform the most delicate operation in an up-to-date manner, and that while his local veterinarian had been satisfactory in

certain respects he could not employ him in the future for any of his work.

Good clients are more plentiful and louder in their praises for the individual practitioner and the profession at large, when they receive that full measure of service which well qualified veterinarians should render. Aside from the humane side of the question, anesthesia is absolutely essential to good surgery. It permits of the development of finer technique, affords time and opportunity for the surgeon to recognize carefully and have due respect for anatomical structures, so that they may have the best possible opportunity for rapid repair following the operation.

For a number of years we have been enthusiastic students and advocates of anesthesia, and, while our accomplishments in this field to date by no means limit future possibilities of development, we do feel that we have made considerable progress. So much so that we can hardly conceive of an adequate excuse for surgical procedure without the use of some form of anesthesia.\* The adoption of practical means for the application of local anesthetics has perhaps contributed more toward the possibilities of the general use of anesthesia than any other factor. When the application of anesthetics is confined to the use of general anesthetics, and only in certain selected cases, we are prone to become hardened to rough, inhumane procedure which leads not only to carelessness and indifference about the use of anesthetics in general but to poorer surgery as well. We not only feel that we have progressed in the use of anesthetics, but are confident that our general surgical technique has been improved by persistently studying this problem.

During the last  $3\frac{1}{2}$  years we have kept accurate record of anesthesia covering 1020 cases, as follows:

LOCAL ANESTHESIA								
Horses and Mules	Cattle	Swine	Dogs	Cats	Sheep	Goats	Kangaroo	Total
188	18	159	41	0	1	3	1	411
GENERAL ANESTHESIA								
(including chloroform, chloral hydrate, ether and morphine)								
67	9	199	314	16	3	1	0	609

During the year 1922 our application of local anesthetics was 5.4 times greater than in 1920, while the use of general anesthetics was 1.6 times greater for the same years. We are glad

\*Perhaps we are at a loss at the present time to apply the above statement satisfactorily to castrations of farm animals and spaying of heifers, but even here believe the practical objection to the use of anesthetics may be removed in time.

to admit that the progress we have made in the successful application of anesthetics in the different species under varying conditions has been largely responsible for the fact that such applications in our practice have increased practically threefold in three years.

In our discussion of anesthesia here we have not attempted an exhaustive treatise of the subject, but simply wish to present the methods we find to be most practical for every-day practice. Both local and general anesthetics have their limitations in general practice, but the successful application of local anesthetics alone and in combination with small amounts of general sedatives, such as chloral hydrate, will greatly reduce the indication for a general anesthetic. The principal factor in our own experience has been the adoption of proper technique of application.

#### LOCAL ANESTHESIA

In considering the subject of local anesthesia from the standpoint of practice, it is important that we have an understanding of first, the anesthetic agents; second, regional anatomy; third, instruments; and fourth, technique.

*1. Anesthetic Agents.* The foremost local anesthetic agents on the market today, with which we have had experience, are novocaine, procaine and apothesine, synthetic preparations, non-habit-forming and relatively non-toxic as compared with cocaine. A fourth, butyn, is receiving some attention as a possible substitute for cocaine in surface anesthesia, especially for eye work, since it is claimed to have little or no desiccating effect and does not affect the pupil. We are informed by Dr. N. S. Mayo that this preparation is receiving some general application in veterinary practice.

According to such a noted author as Braun,<sup>4</sup> all local anesthetics produce their effect by a protoplasmic poisoning action, having a particular affinity for nerve tissue and nerve endings. The action of the drug and reaction of the tissues injected is somewhat dependent upon several factors. First, the strength of the solution, since the tissue fluids tend to dilute the anesthetic solution as diffusion takes place, thus limiting the extent of action. Second, the kind of solution. Braun<sup>4</sup> has clearly demonstrated, (a) that the injection of sterile water into the tissues is a painful procedure followed by local anesthesia of very short duration, the tissues remaining infiltrated for some

hours; (b) that the injection of an isotonic solution (normal saline) would not irritate nor produce a lasting infiltration of the injected tissues nor would any anesthesia result, thus proving that satisfactory anesthesia is produced by the direct action of the anesthetic agent, and is not due to infiltration of the tissues, and also that it is of great advantage to dissolve the anesthetic agent in an isotonic solution such as normal saline, Ringer's solution, or, as is quite generally recommended, a .5% saline solution. (Our tests confirm this.) The fact that these anesthetic solutions in themselves have a tendency to produce an isotonic solution is of little importance when using weak solutions. At least this is known to be true for cocaine, since Braun<sup>4</sup> states that it would require a 5.8% solution of cocaine in sterile water to produce an isotonic solution.

It is furthermore known to be of assistance to the action of the local anesthetic solution to add five drops of a 1-1000 adrenalin solution to each hundred cubic centimeters of whatever strength solution is to be used. This tends to delay absorption of the solution, and thereby not only prolongs its action but further lessens the liability of a general toxic effect of the drug. Another important reason for the addition of adrenalin is its power to diminish capillary hemorrhage in the injected area.

2. *Anatomy.* All recent authorities upon the subject of local anesthesia stress the importance of being nerve anatomists, and this seems entirely plausible. For nerve-blocking or conduction anesthesia, one must know not only what nerves supply the region to be anesthetized but also the course and relative position of the nerve trunk, in order that the solution may be placed in actual contact with the nerve. For this purpose we use a 2% solution of the anesthetic agent.

For terminal or infiltration anesthesia one must know what structures are sensitive, in order to know how to inject a region effectively. For example, the skin, nerve trunks, blood vessels, periosteum, synovial membranes, parietal peritoneum and mucous membranes near the orifices are all sensitive structures, while subcutem, fat, muscles, tendons, fascia, bone, cartilage and visceral peritoneum are considered insensitive structures, except where nerve trunks or blood vessels are present. In abdominal surgery one must not disregard such sensitive points as the broad ligament, the ovarian pedicle and the mesentery. For terminal anesthesia, we use a .5% solution of the anesthetic agent.

Diffusion anesthesia, as we have already noted, depends to a great extent upon the strength of the solution employed. However, we must realize that fascia is a formidable barrier, and that solutions injected subcutaneously, for example, diffuse in the non-sensitive, loose, subcutaneous tissues without producing the desired result either in the overlying skin or in deeper structures. Thus we see the importance of injecting individually the *sensitive* layers to be invaded, and avoid wasting time and material on non-sensitive structures. Where one depends upon the diffusion method, he must wait a variable length of time before beginning the operation.

(The above was shown to be true by one of the authors, both by practical test with the knife and by using a colored solution and then observing the extent of diffusion.)

3. *Instruments.* The instruments necessary for this work are very important, since failure and unreliable results follow attempts along this line when not properly equipped. The syringe should be in perfect working order, one that can be easily sterilized and can always be depended upon to make injections into the tissues under a reasonable amount of pressure. We prefer a 10-cc syringe with a short, glass barrel. A proper needle is one of the most valuable assets in perfecting the technique of this operation. It must be fine-gauged, rather flexible yet durable. For our work, we are using the 505 N. Champion veterinary needle, 22-gauge, one- and two-inch lengths, made by Becton, Dickinson & Company, Rutherford, New Jersey. In some areas where the skin is especially hard to inject, as that of the ox, or the top of the neck, poll and withers of the horse, a one-inch needle is preferable.

4. *Technique.* First, establish an insensitive *wheel in the skin* by placing the point of the needle simply within the epiderm, and inject a small quantity of anesthetic solution as the needle is inserted into the deeper layers of the skin, thereby anesthetizing ahead of the needle. A bleb, or so-called wheel, will be noted in the skin, varying in size according to the extent of the injection. This serves as an insensitive point from which further injections may be made. It is usually advisable to apply the twitch in making the primary injection.

For deep injections, we determine approximately the location of the point of the needle by paying close attention to variations in the resistance of fascial layers and other tissues. If, in the course of an operation, such as scrotal or umbilical hernia, for



example, we find that the parietal peritoneum or hernial sac is not anesthetized, it takes but a very few seconds to inject around the neck of the sac before proceeding further. Poll evils, shoulder tumors and tumors of all kinds may be handled in like manner. However, in these cases one usually finds the primary injection sufficient.

For all ordinary operations we find the skin injection to be the most important part of the procedure, since the skin is usually the most sensitive structure with which we deal. The skin injection is made *intracutaneously* in the following manner:



Fig. 1. Operative field blocked by intracutaneous injection of the anesthetic solution.

With the point of the needle inserted into the skin, a small amount of solution is injected, producing the so-called wheal. Holding the needle parallel with the surface of the skin, it is now ready to be advanced. A little pressure on the plunger of the syringe forces the solution ahead of the needle, separating the layers of the skin and causing an elevation upon the surface. The point of the needle is thus caused to follow the solution, and thereby the injection is rendered painless. It is important to notice this elevation upon the surface

(fig. 1). In making an incision for deep-seated ab-

cesses, etc., the intended line of incision only may be injected, since these edges will not be united by sutures. It might be considered better technique in some operations if the area to be incised is encircled by the injection rather than making a single injection in the direct line of incision (figs. 2 and 3). Thus, the incision is not made into the infiltrated skin.

In certain operations, as fistula of the withers, where the bone and very deep tissues may be invaded rather extensively, we recommend the preliminary administration of about *two ounces*

of chloral hydrate solution directly into the stomach by means of the stomach tube. We find local anesthesia alone, or in combination with chloral hydrate, in special cases, to be very practical, and it has eliminated to a great extent the use of general anesthesia in our practice. If the skin is properly injected, it remains anesthetized for at least forty-five minutes.



Fig. 2. Shows operation in progress within the area. Notice that the animal shows no reaction.

Acutely inflamed tissues are hypersensitive, and results have not been satisfactory when injections were made directly into such tissues. We have not been successful in the use of local anesthetics for the removal of large scirrhus cords in pigs, and, since learning Dr. C. E. Juhl's method of passing the stomach tube, we much prefer the use of chloral hydrate in these cases.

#### TECHNIQUE FOR SPECIAL REGIONS

1. *Dental Anesthesia.* Since 1915 "nerve-blocking" or con-



Fig. 3. Completing the operation. No restraint has been necessary at any time.

and incisor teeth. The dental branches of the mandibular nerve (fig. 4) are detached from the nerve within the mandible, and are arranged like the corresponding nerves of the upper jaw." (Sisson.)

ductive anesthesia of either the entire infra-orbital nerve or the mandibular alveolar nerve, as may be desired, has been used during dental operations in horses. "The infra-orbital nerve gives off alveolar or dental branches. The posterior branches pass through small foramina in the tuber maxillare and supply the posterior molar teeth and maxillary sinus. The middle branches are given off in the infra-orbital canal, and constitute the chief nerve supply to the cheek teeth and the maxillary sinus. The anterior branches supply the canine

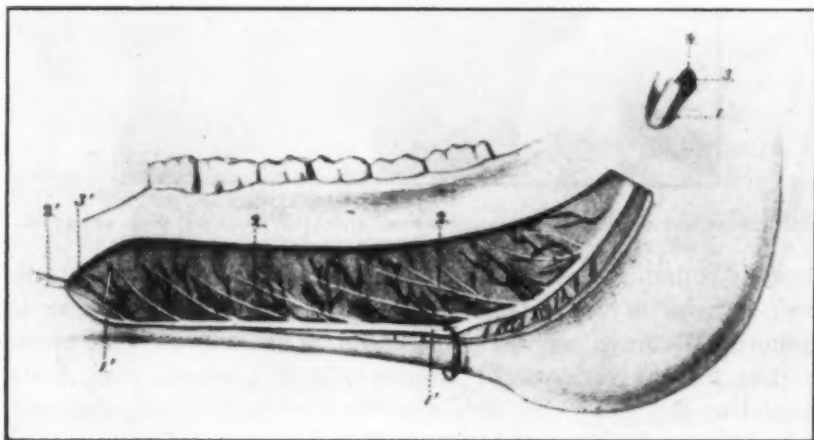


Fig. 4. Part of branch of lower jaw of horse; medial view. The bone has been removed to show the vessels and nerves. 1, 1', Mandibular alveolar nerve; 2, 2', branches to cheek and gums; 3, 3', alveolar artery; satellite vein. (After Leisering's Atlas.)

The object of the operation is to inject directly upon the infra-orbital nerve, or the mandibular alveolar nerve, as the case may be, a sufficient amount of anesthetic fluid to "block" the sensation of these nerves at the points where they enter, respectively, the maxillary foramen and the mandibular foramen. For this purpose it is necessary to be provided with a hypodermic syringe and a 22-gauge needle about 10 cm in length.

For injection of the infra-orbital nerve, select a point on the side of the face opposite the lateral canthus of eye and just inferior to the facial crest, being careful to keep above the



Fig. 5. (a) Shows course and relation of needle passed into the pterygo-palatine fossa, to reach the infraorbital nerve. (b) Shows position of needle to reach the mandibular alveolar nerve.

transverse facial vessels. The field being carefully shaved and painted with tincture of iodine, penetrate the skin with the sterilized needle, keeping the point directed medially and slightly anteriorly, so that it will pass ventral to the border of the zygomatic process and drop into the pterygopalatine fossa just posterior to the maxillary tuberosity (figs. 5 and 6). Push the needle in until it strikes the perpendicular portion of the palatine bone in the region of the maxillary foramen, a depth of 6.5 to 7.5 cm depending upon the size of the animal. Following this technique, it is possible to avoid puncture of the vena reflexa, which lies just posterior to the point of injection. Having placed the needle, inject 4 to 5 cc of a 2% solution of the anes-

thetic fluid. Withdraw the needle slightly as the injection proceeds. Anesthesia should be established after ten to twelve minutes, and should last twenty to thirty minutes after being established. We have tried blocking the nerve by introducing the needle into the canal through the infra-orbital foramen, as suggested by Dr. L. A. Merillat and others, but have not had as good results. We believe this to be due to the interference with distribution of the fluid offered by the connective tissue within the canal.

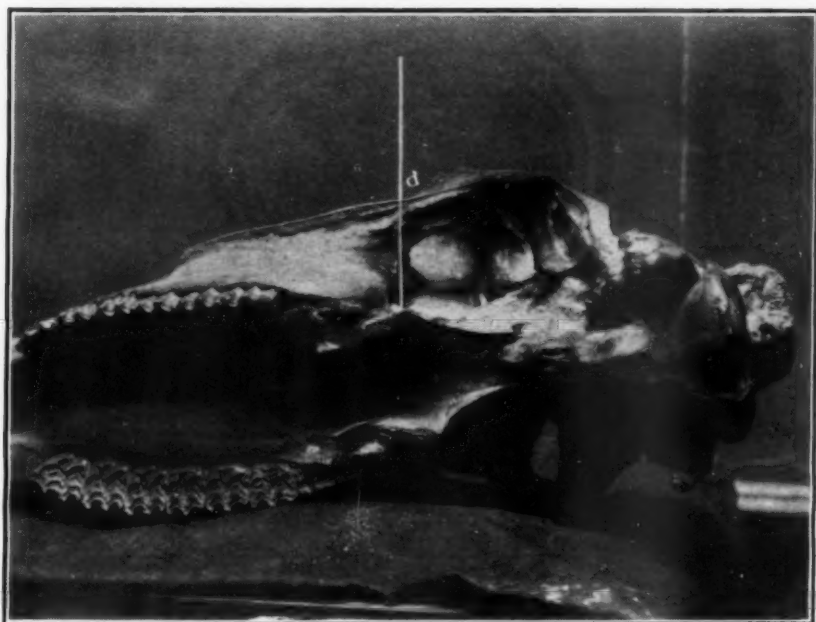


Fig. 6. (a) Shows depth to which needle must penetrate to reach the infraorbital nerve.

The injection of the mandibular alveolar nerve is a more difficult matter. Possibly a better technique may be devised later. The mandibular foramen lies practically opposite the point of intersection of a line dropped from the lateral canthus of the eye to meet a line extended backward from the plane of the table surfaces of the mandibular teeth (fig. 7). These structures can be palpated from the outside, and the approximate location of the foramen determined for the guidance of the needle in direction and depth. To reach the nerve after our present method, select a point on the posterior border of the mandible about 3 cm below the temporo-mandibular articu-





Fig. 7 Lateral view showing position of needles for blocking nerves.

lation. After thorough preparation, penetrate the skin at this point, and allow the needle to lie in the depression between the wing of the atlas and the base of the ear. Depress the point of the needle until it passes by the medial border of the mandible. Advance the needle to the depth and in the direction of the point of intersection of the above-mentioned lines, keeping the point as close as possible to the medial surface of the mandible, but, as the nerve lies medial to the accompanying artery and vein, the needle does not need to follow the bone



Fig. 8. (a) Shows approximate course of mandibular alveolar nerve. (b) Shows relation and direction of the needle to reach the mandibular foramen.

closely (fig. 8). Following this method, the needle should parallel the nerve for a distance of 3 to 4 cm. Distribute 4 to 6 cc of a 2% solution of the anesthetic fluid along this length,

and a good anesthesia should result.

2. *Quitters and Other Painful Foot Operations.* After thoroughly preparing the field over the course of the plantar or volar nerve, we first establish an insensitive wheal by an intradermal injection of a small amount of solution. From this insensitive wheal we then advance the needle, which should always be detached from the syringe, to the approximate location of the nerve trunk. We now inject about 2 cc of a 2% solution. If one is successful in applying the solution near the nerve and between the same fascial layers which contain same, a successful anesthesia will be obtained. The foregoing sentence may explain negative results often obtained when attempting to use local anesthesia for diagnostic purposes.

3. *Ring-bone.* The same procedure as described for the quitter may be employed, or, if the ring-bone is small, one may encircle the process by an intracutaneous infiltration of the skin and make deeper injections reaching the periosteum.

4. *Tenotomy of flexor perforans.* The intended field of operation having been thoroughly prepared, an intracutaneous injection along the line of incision, together with a small amount of a solution injected deeply into the field of operation anterior to the deep flexor tendon, will successfully relieve all pain for this operation.

5. *Spavins.* Here the same method of procedure as given in the second method for ring-bone may be employed.

6. *Fistula of the withers.* We first make an intracutaneous injection over the top of the withers longitudinally along the line of intended incision. We then make an intracutaneous injection along the side of the neck, encircling the field of operation for lowest point of drainage, namely, just in front of the anterior border of the scapula and at the inferior border of the rhomboideus muscle (fig. 9). We find that these two injections are usually all that are required in the majority of fistula operations, since the skin in these regions is practically the only sensitive structure invaded for simple drainage of the process. Where rather extensive operating is anticipated, we previously administer two ounces of chloral hydrate dissolved in a quart of warm water, and given twenty to thirty minutes prior to operation directly into the stomach by the use of the stomach tube. We very rarely resort to chloroform for such operations.

7. *Poll Evil.* The area having been thoroughly prepared, the intended line of incision in the median plane is intracutaneously

infiltrated with a  $\frac{1}{2}$  per cent solution. Through this insensitive line we make deeper injections, particularly in contact with the periosteum on the posterior surface of the occipital tuberosity. In most all cases where the pathology is confined to the bursa in the form of a serous bursitis, the above method of injection proves adequate. Where there is considerable acute inflammation present, due to extensive phlegmonous parabursitis, the pre-



Fig. 9. Showing field of operation and method of injecting.

liminary administration of chloral hydrate, as recommended under fistula of the withers, will prove likewise to be adequate.

8. *Shoulder tumors (galls and abscesses).* For removing these processes, one should first encircle the process by an intracutaneous injection of a  $\frac{1}{2}$  per cent solution, and then make deep injections from several points around the process with a long needle in such a manner that the deepest points of the

many injections will be at, or near, the same point under the process.

9. *Tumors.* Tumors of all kinds, including infectious breast tumors of swine, may be successfully removed following the same technique as given in 8, providing the processes are not so extensive as to make successful injection impossible.

10. *Umbilical hernia.\** The intended field of operation is encircled by an intracutaneous injection of a  $\frac{1}{2}$  per cent solution in the usual manner. Where such injections include a rather large isolated area, a small amount of solution is injected subcutaneously also, in order to block any sensory nerves that might approach the isolated skin subcutaneously. Deeper injections are now made around the neck of the sac at the hernial ring. After isolating the hernial sac and before attempting to suture, we anesthetize the peritoneum around the hernial ring by passing the needle between the abdominal floor and the parietal peritoneum, directing the needle with one finger inside the abdominal cavity, and thus we inject a  $\frac{1}{2}$  per cent solution completely around the ring. This makes it possible to suture through the peritoneum without any sign of pain. The only objection to the use of local anesthesia in such operations is the fact that occasionally pigs struggle under confinement without any indication of pain. However, the struggling tends to force the abdominal content into the hernial sac, which interferes with operative procedure. Personally, we have not found this to happen often enough to be a serious handicap. Chloral hydrate per os is the preferred anesthetic when local anesthesia is not used.

11. *Inguinal hernias.* Here a triangular area of skin is isolated by an intracutaneous injection of a  $\frac{1}{2}$  per cent solution directly over the inguinal ring and canal, with the base of the triangle just anterior and parallel to the anterior margin of the ring and the apex extending well back toward the scrotum. The tunica vaginalis proprius having been exposed by incision, we now inject 5 to 10 cc of a 1 per cent solution directly into the vaginal sac. We also inject a small quantity into the subperitoneal tissue immediately surrounding the inguinal ring.

12. *Castration.* We have been able to demonstrate convincingly that this operation can be performed painlessly by a comparatively simple method of applying local anesthesia. The intracutaneous injections are made in the usual manner at two

\*See article on Umbilical Hernia in the Pig—Practitioners' Short Course Bulletin, 1923.

points, (a) along the intended line of incision and (b) at the point of attachment of the scrotal ligament. Deeper injections are also made at this latter point and immediately around the cord anteriorly. After exposing the testicle and cord within the tunic, we now instill 5 to 10 cc of a 1 per cent solution into the sac formed by the tunic. In this way the solution is in contact with the structures of the cord as far forward as the inguinal ring. We have used this method to our entire satisfaction on both the pig and the dog, and less satisfactorily in the horse, but hope to perfect our technique so as to make its application fully satisfactory in this species as well.

13. *Cesarian section of the sow.* An intracutaneous injection is made in the usual manner along the line of incision. It is also advisable to infiltrate the tissues underlying the skin, layer by layer, down to the parietal peritoneum. Since anesthesia is instantaneous, we can more accurately inject some of the deeper layers as we proceed with the operation.\*

14. *Spaying heifers.* Here we use exactly the same technique as recommended in the first part of 13.

15. *Rumenotomy.* Same as 13.

16. *Teat operation.* Here we infiltrate the skin and tissues around the field of operation much the same as in removing tumors. In case of rather extensive operation, we may block the entire teat by injecting thoroughly around the base. In addition to this, where one is operating inside the milk canal, one may instill a few cubic centimeters of a 2 per cent solution directly into the canal and wait a few minutes for surface anesthesia.

17. *Tail amputations—horse and dog.* Local anesthesia of the tail of the horse in preparation for amputation is difficult, on account of the curvature of the surface and the thickness and tenseness of the skin. The injection should be made intracutaneously at a large number of points encircling the tail, above the point of operation. The deeper layers are infiltrated and a few cubic centimeters placed deeply at the point of disarticulation. This same technique gives perfect satisfaction in the dog.

18. *Accidental wounds.* The use of local anesthetics, properly injected, greatly facilitates the handling of these cases, and very materially leads to better work, better results and more satisfaction to both operator and client.

\*It has been our usual practice in this operation to use chloral hydrate alone, and, when this is insufficient, give a small amount of chloroform in addition.



19. *Ablation of the eye.* The lids and conjunctiva can be blocked in the usual manner and the tissues surrounding the orbit infiltrated by points deeply placed. Where the tissues are acutely inflamed at the time of operation, satisfactory anesthesia has not always been obtained, but we believe this to be due to lack of proper technique, which needs to be further worked out.

#### SURFACE ANESTHESIA

Mention has already been made of the application of 1 and 2 per cent solutions to serous and mucous surfaces, namely, the tunica vaginalis surrounding the spermatic cord and the mucous membrane lining the teat canal. For operations upon the surface of the eye, we first instill a few drops of a 2 per cent solution of butyn upon the cornea and conjunctiva. After a few minutes, a second instillation is made. This makes it possible to perform minor operations, such as the removal of foreign bodies from the cornea and conjunctiva, cauterization of the cornea, etc. When employing cocain for this purpose, we use a 4 per cent solution, and it is necessary to keep the surface of the eye moist with saline solution because of the desiccating effect of cocaine.

The tympanum of the ear is best anesthetized by the use of a few drops of Bonain's solution, consisting of:

Phenol,  
Menthol,  
Cocain hydrochloride   aa.

These crystals when rubbed together make a syrupy liquid. A small pledget of cotton, secured to the end of a flexible instrument, is used to carry a few drops of this liquid in contact with the tympanum, where it is held for about five minutes.\*

#### SEDATIVES AND HYPNOTICS USED AS GENERAL ANESTHETICS†

1. *Chloral hydrate.* We employ chloral hydrate quite frequently for the horse, pig and ox, and find it quite applicable in the conditions enumerated below. In all three species our method of administration is practically the same. If possible, we prefer to have the patient starved out at least twelve to twenty-four hours prior to administering the chloral, and find that our

\*See article on Otitis Media in April number of this Journal, 1923.

†Under this heading we are giving a brief discussion of chloral hydrate and morphin only. While we employ these products and feel that they answer a need at the present time, we believe that their use may be greatly limited in the future as we become more familiar with anesthetics and their application.

results are more uniform. We also find it to be an advantage to have the chloral dissolved in warm water immediately before it is administered. The amount of chloral used depends upon the species and weight. For horses weighing a thousand pounds and over, an ounce and a half to two ounces, dissolved in a quart of *warm* water, is administered directly into the stomach by way of the stomach-tube. In this way there is no loss of material, and we believe by withholding feed prior to the administration that absorption is more rapid and the results more uniform. The usual time required following the administration, before a proper state for procedure is reached, is twenty to thirty minutes. We recommend its use in the horse only when used in conjunction with local anesthetics, as suggested under the discussion of fistula and poll evil, or alone in such operations as ovariectomy and oftentimes in comparatively simple operations where the animal is quite irritable and hard to control. We sometimes use it preliminary to putting horses upon the operating table or to casting certain fractious individuals in order to avoid injury and lessen labor.

In the ox, if mature, we use from one to two ounces of chloral, dissolved in a quart of warm water, which may be administered directly into the stomach by the use of the stomach-tube or given as a drench. Its action is very good in this species, and if such administration is supplemented where necessary by the the administration of a small amount of chloroform, suitable anesthesia is obtained for most all practical purposes.

In the pig, we have used chloral hydrate very extensively, and feel that we can highly recommend it for practically all operations where general anesthesia is indicated. We administer it directly into the stomach, according to Dr. C. E. Juhl's method of medicating swine, using his technique for passing the stomach-tube. We have kept accurate records on a large number of pigs, particularly in regard to the weight of the pig and the amount of chloral hydrate used. We found that by using three drams of chloral hydrate per fifty pounds of body weight that satisfactory general anesthesia was obtained in four-fifths of the subjects, after waiting twenty to thirty minutes for the chloral to act.

Our maximum dose for hogs has been two and a half ounces of chloral hydrate, dissolved in one quart of warm water. The amount of water used varies with the amount of chloral hydrate. If after waiting thirty minutes a state of surgical anesthesia

has not been reached, as was the case in one-fifth of our subjects, it requires but very few inhalations of chloroform to produce the desired state. The chloroform may then be removed and anesthesia is maintained. We have found in a number of these cases which did not respond quite satisfactorily at the usual time, that they would reach the desired state of anesthesia at the end of forty-five minutes to one hour. Perhaps this variation may be due to the variation in the stomach content. Chloral hydrate is used by us for such operations as removing scirrhus cords, extensive breast tumors in the sow, and in operating umbilical and scrotal hernias in pigs.

*2. Morphin sulphate.* We have been using morphin in the dog over a period of several years, and have found it very satisfactory, except where we have unfortunately secured a product of low potency. Especially do we prefer morphin where a prolonged anesthesia is desired, that is, where it is desirable to keep the patient quiet for some time following an operation. Other factors in its favor are, the ease with which it is administered, its promptness in producing its effect and the safety with which it can be employed.

Owing to the constipating effect of the drug, the patient is prepared by withholding feed for twenty-four hours prior to administration and until the day following. In addition the patient is given a purgative dose of castor oil at the beginning of the period of fasting.

The morphin is given subcutaneously, the dosage varying from  $\frac{1}{2}$  to 3 grains, depending principally upon the size of the animal. Much larger doses can be given safely, but the above dosage has proved sufficient.

A few minutes following administration the animal shows nausea and vomiting, and in fifteen to thirty minutes anesthesia is sufficiently advanced to render surgical procedure practically painless. Where it seems advisable to prevent nausea and vomiting, or where the respiratory act indicates that the depressant effect of the morphin upon the respiratory center might prove detrimental, we combine atropin with the morphin, giving from 1/80- to 1/10-grain doses.

Lately we have experienced considerable difficulty in securing morphin sufficiently potent to insure results. This makes the determination of proper dosage extremely difficult, and leads in many cases to unsatisfactory anesthesia.

We have found upon inquiry that a great many veterinarians

have had this same experience, and that some of them have discontinued the use of the drug entirely, feeling that if ether or chloroform might possibly be needed to finish the anesthesia, one of them should be depended upon entirely.

#### GENERAL ANESTHESIA

1. *Chloroform.* Where a complete relaxation of muscles and a state of general anesthesia is desired, chloroform undoubtedly stands out as the foremost agent for both the horse and the ox. We have used it for a number of years, and feel justified in fearlessly recommending it as a safe procedure, when properly given. However, in general practice, it is applicable only in the warm months of the year, unless one is equipped with a well heated hospital.

#### GENERAL EXAMINATION OF THE PATIENT

Before resorting to the use of general anesthesia, the patient should be carefully examined to determine the frequency and character of the pulse and respiration, fullness of the digestive tract and stage of pregnancy, if pregnant. Also the presence of any wounds, paralysis or unsoundnesses, which, if not noticed and the owner's attention called to their presence, may later be laid at the door of the operator. Respiratory and circulatory diseases, general debility and generalized septic conditions offer the chief contraindications. Any irregularity noticed may lead to the selection of a different form of anesthesia, or the dangers should be stated to the owner before operating.

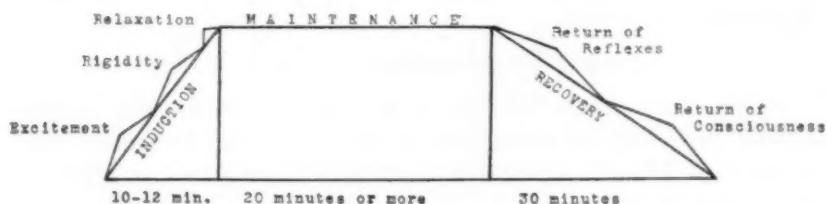
It is of the utmost importance that the chloroform should be fresh and not have been exposed to sunlight or heat. It should be used from the original container. Any chloroform left over from a previous operation the day before should be discarded for purposes of anesthesia. For this reason we recommend that it be purchased in not larger than one-quarter-pound bottles.

#### TECHNIQUE AND DISCUSSION OF ADMINISTRATION

The patient should be comfortably confined, and inconvenienced as little as possible.

*Position of head.* The head should rest in a perfectly natural position, since if flexed to any degree stertor and obstructed breathing will result, while extension deprives the larynx of its natural protection, thus rendering swallowing difficult or impossible and exposing the larynx to the entrance of mucous or foreign substances. We do not lay a great deal of stress upon

dieting the patient, though, if possible, withhold the feed for about twelve hours previous to operation. This is perhaps more important in fat and vigorous individuals. According to Flagg<sup>1</sup>, complete general anesthesia is divided into three distinct stages, namely, the stage of induction, the stage of maintenance and the stage of recovery. These three stages are further divided, as follows: The stage of induction into (a) the period of excitement, cerebral and muscular, (b) the period of rigidity and (c) the period of relaxation. The stage of maintenance is not divided. The stage of recovery is divided into two periods, (a) the return of reflexes, (b) the return of consciousness. (See chart.)



This method of charting the curve of complete anesthesia seems quite practical and applicable to chloroform anesthesia of the horse.

First, the induction. We prefer the open method of administering chloroform by the use of toweling placed over the upper nostril through which the chloroform is to be inhaled, the number of thicknesses, varying from time to time, depending upon the concentration desired. We find that results are best where the least amount of excitement is encountered, since this induces struggling, which, in turn, by causing deep, rapid breathing, tends to produce a condition known as apnoea, which may be followed by apnoea. This is one of the conditions known as primary shock and may be easily avoided, and will not result seriously, providing the anesthetic is removed and the patient allowed to recover. However, if the anesthetist continues to administer chloroform, the toweling becomes saturated, and, when the patient again breathes deeply, the concentrated vapor may cause cardiac syncope, respiratory syncope, or both. We find that the period of excitement can be reduced to a minimum by observing the following procedure: The upper nostril having been lubricated with vaselin, a single thickness of toweling is placed loosely over this nostril. A few drops of



chloroform are then dropped upon the toweling at such intervals as the individual indicates a growing tolerance for same. In this manner the patient becomes accustomed to the fumes of chloroform; the irritation to the sensory nerve-endings in the respiratory mucous membrane is reduced to a minimum, and thereby excitement and struggling are practically eliminated. As soon as practicable, the lower nostril is completely plugged, and an assistant takes a firm grasp upon the lips on either side of the mouth, so as to prevent any possible intake of air by way of the oral cavity. This we believe to be absolutely essential to successful induction. The patient is now quite accustomed to the fumes of chloroform, and we therefore gradually increase the number of thicknesses of toweling and the quantity of chloroform given until we reach four to six thicknesses of toweling and are dropping on several drops of chloroform at each inspiration.

The stage of rigidity will not concern us much, unless caused by prolonged excitement from any cause, such as (1) obstructed respirations, (2) interference with the patient, such as attempts to prepare the field of operation or unnecessary interference by bystanders, or (3) beginning the operation before the stage of anesthesia has been reached. We disagree with Brumley,<sup>9</sup> Saunders,<sup>10</sup> and others, who prefer a slow induction period covering fifteen to thirty minutes. We believe, that after carefully leading up to a maximum administration, that it is safer and much more satisfactory to push the anesthetic until surgical anesthesia or the stage of maintenance is reached. Following this procedure, relaxation is usually reached in eight to ten minutes, and the maintenance stage in ten to twelve minutes from the beginning of administration. At this point the administration is reduced to the minimum, which varies for different individuals, and this minimum is maintained throughout the maintenance stage.

If one proceeds slowly with the administration of chloroform, the patient suffers more excitement and struggling and the undesirable consequences that accompany such. Also, a greater amount of chloroform is required to produce complete anesthesia. Any of the foregoing conditions or circumstances which tend to produce struggling and deep breathing for any length of time will cause an accumulation of oxygen in the blood, with a proportionate diminution of carbon dioxide content (acapnia). Carbon dioxide is the excitant of respiration, and

general anesthesia depresses the respiratory center, which therefore needs increased carbon dioxide stimulation in order to maintain adequate respiration. By pushing the anesthetic, as above recommended, a certain amount of rebreathing is induced, and thus the carbon dioxide content of the blood is raised (hypercapnia). The condition of the patient is more pliable than where there is a tendency for apnoea from acapnia.

During the induction of chloroform, we watch very carefully the respiratory movements, the pupil of the eye, the corneal reflexes, and the pulse. The respirations at first tend to be rapid and shallow, but soon become more regular, slower, deep and full, and should continue so throughout. The pupil at first dilates, but soon contracts, and remains about the same throughout the maintenance stage unless, due to narcosis, it is noticed to dilate suddenly. However, if one is watching the respiratory movements carefully, such a stage of narcosis will not be reached. The eyelids are widely dilated until the stage of relaxation is reached, at which time the lids become droopy, and, if passively closed, tend to remain in that position. During the stage of rigidity, the eyeball oscillates considerably, and during the latter stage of induction the animal may attempt to neigh. The most highly organized centers of the brain, namely, the cerebral centers, are the first to succumb to the action of chloroform, while the vital centers in the medulla and the lower reflexes controlled by the cord are only affected in case of intoxication. Thus we see that all parts of the body are not affected to the same degree by general anesthetics. A loss of consciousness, suspension of central and spinal sensory and motor impulses, constitutes what we generally term surgical anesthesia.

The corneal reflexes may be used as an index to the stage of anesthesia, since they disappear about the time the maintenance period is reached, which is long before the danger point would be reached in case the anesthetic should be pushed too far. We do not make a practice of constantly testing the corneal reflexes, since it is irritating to the eye and considered unnecessary. The corneal reflex disappears soon after the relaxation and drooping of the eyelids, and if it is desired to test these reflexes they can be tested at this stage.

The heart action becomes accelerated, due to central depression of the inhibitory mechanism, but the pulse should remain full and strong. For reasons already mentioned, the operation

should not begin until the patient is in the state of complete anesthesia. Highly inflamed tissues retain sensibility longer than normal tissues, and therefore a little deeper anesthesia is required when operating upon these tissues. All patients should be maintained in the proper state of anesthesia with the least possible amount of anesthetic agent. This requires a careful study of each individual patient by the anesthetist. At the close of the maintenance stage, the animal should be permitted to recover naturally, and not forced to assume a standing position before it has sufficiently regained consciousness and muscular control. The time required for recovery will vary with different individuals, according to the time and depth of anesthesia. Ordinarily, an animal will recover in about thirty minutes. However, feed and water are withheld at least ten to twelve hours following general anesthesia.

2. *Ether.* We sometimes employ ether as a general anesthetic in the dog, and rely upon it entirely for anesthesia in the cat. We feel that there is practically no danger from ether as an anesthetic in these animals, if properly administered. The general principles as laid down for the use of chloroform are observed in using ether. The period of induction is made as short as possible, and especially is this desirable in the cat, owing to the peculiar susceptibility of the cat to drugs. The method of administration consists in placing a small amount of cotton saturated with one to two drams of ether in the bottom of a conical graduate or anesthesia cone. This is then placed over the nose and mouth of the animal, which has previously been confined on the operating table or in some other suitable manner. There is a short period of struggling, but in from three to ten minutes anesthesia is established and the ether is removed temporarily and administered thereafter as the occasion demands.

The anesthetist should carefully watch the respirations, as the rate and character of these are the safety valves in anesthesia.

Where the anesthesia has been pushed too far, or where asphyxia threatens from any cause, the ether should be removed at once. Plenty of fresh air should be allowed, and artificial respirations established at once. Inhalations of ammonia are also serviceable.

#### SHOCK

In considering intoxication and collapse, we believe that too

much emphasis has been placed on the drug and not a sufficient amount of responsibility placed upon the surgeon. We have elsewhere disposed of primary shock. According to Robinson,<sup>2</sup> "Secondary shock is accentuated by administration of anesthetics, but is not relieved by cessation of the anesthetic. The failure of the circulation is due to diminution of the volume of blood in the circulation, and therefore heart stimulants are useless." Adrenalin and pituitrin, which cause constriction of the arterioles, are also useless. Strychnin, which has a purely central action, is, of course, completely useless in this condition, as was shown twenty years ago by Crile.

Primary and secondary shock have been confused in the past, and hence numerous drugs, which do good in the less serious condition of primary shock, have been recommended for the far more serious condition of secondary shock, for which they are unsuitable. Crile performed a long series of experiments on mammals, and showed that violent sensory stimulation, and particularly injury of the viscera, produce a progressive fall of blood pressure due to exhaustion of the vaso-motor center.

The cause of secondary shock appears to be a poisoning of the body with some substance with a histamin-like action that is produced when tissues are injured. It is considered, therefore, that secondary shock is produced primarily by a tissue injury, and is made worse by hemorrhage, cold, massage, or movement of the injured parts. The prevention of shock, therefore, very largely rests with the surgeon's ability to handle all tissues during operation so carefully that the least possible amount of injury is incurred. Extensive, clean-cut incisions and dissections properly cared for are not so injurious or apt to produce shock, as rough manipulation of tissues and organs where the incisions are much less extensive in comparison.

Once shock is established it is difficult to treat, but the chief form of treatment is the restoring of the lost plasma of the circulation. Intravenous injections of normal saline solution produce an immediate beneficial effect, but the action is very transient, because it is very rapidly excreted by the kidneys. Intravenous injections of normal saline in 6 per cent gum arabic, as recommended by Sir W. Bayliss, produce much more favorable effects, and the beneficial effect is more prolonged. In human surgery the transfusion of blood, if possible, is most efficacious.

In the treatment and prevention of further shock, Crile<sup>6</sup> lays particular emphasis upon the following points:

First, checking of hemorrhage.

Second, relieving pain, and for this purpose he recommends morphin as the "surgeon's sheet-anchor."

Third, blood transfusion; since the blood can only temporarily be diluted with saline solution.

Thus we see the advantage and possibility of preventing shock in surgery rather than attempting its treatment as a complication. We arduously advocate the development and application of more perfect technique in veterinary surgery, and are firm in the belief that the successful application of anesthetics is one of the first important steps in attaining this goal.

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<sup>1</sup>Flagg: Art of Anaesthesia.

<sup>2</sup>Hewitt: Anesthetics and Their Administration

<sup>3</sup>Allen: Local Anesthesia.

<sup>4</sup>Brown-Shields: Local Anesthesia.

<sup>5</sup>Labat: Regional Anesthesia—Its Technical and Clinical Application.

<sup>6</sup>Crile-Lower: Anoci-Association.

<sup>7</sup>Juhl: Use of the Stomach Tube in Swine—*Jour. A. V. M. A.*, lxiii, n.s. 16 (1), April, 1923.

<sup>8</sup>Sisson: Anatomy of Domestic Animals.

<sup>9</sup>Brumley: Surgical Anaesthesia—*Veterinary Alumni Quarterly*, Sept., 1914.

<sup>10</sup>Anesthesia—*Amer. Jour. Vet. Med.* xiv (12), Dec., 1919.

#### VETERINARY PRACTITIONERS' WEEK

The California State Veterinary Medical Association, in cooperation with the Division of Veterinary Science, of the University of California, has arranged a splendid program for Veterinary Practitioners' Week, at University Farm, Davis, Calif., January 7-10, 1924. Special lecturers who will assist in the program are: Dr. T. H. Ferguson, of Lake Geneva, Wis.; Dr. Maurice C. Hall, of Washington, D. C.; Dr. K. F. Meyer, of San Francisco; and Dr. W. Pfenninger, of the University of Zurich, Switzerland.

The course is open to all qualified veterinarians. No fees will be charged. The expense of the course will be paid by the College of Agriculture, of the University of California.

On December 13, a club was organized in Philadelphia, under the name of The Philadelphia Club for Horsemen. Its object is to promote horse interests. Several veterinarians of the city are taking an active interest in the work of the organization.



# INJECTION OF CATTLE WITH *B. TUBERCULOSIS* (AVIAN) AND RESULTS OF SUBSEQUENT TUBERCULIN TESTS<sup>1</sup>

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## INTRODUCTION AND HISTORY

There has been considerable work done with tuberculosis of cattle with regard to its relationship to human infection. Comparatively little has been done on the transmission of the avian tubercle bacilli to cattle and it is along those lines that this paper is written.

Several workers such as Day,<sup>1</sup> Christiansen,<sup>2</sup> Mohler and Washburn,<sup>3</sup> Bang,<sup>4</sup> Hastings and Halpin,<sup>5</sup> Dunne,<sup>6</sup> and others have demonstrated and proved that swine may be infected with the avian tubercle bacillus

Several years ago Arloing<sup>7</sup> stated that the avian form could infect mammals and that the human and bovine types will affect birds. At that time he thought the avian form was an atypical form of Koch's tubercle bacillus. We will not attempt to discuss this latter point here, but merely mention it. Koch and Rabinowitsch<sup>8</sup> made the statement about 1908 or 1909 that the avian and mammalian tubercle bacilli are varieties of a single species while Weber and Bollinger<sup>9</sup> said they were not the same organism. The latter workers believed at that time that there was little chance for infection of mammals with avian organisms.

In 1911 Giltner<sup>10</sup> reported the feeding of twin calves about two weeks old with finely chopped organs of a tuberculous hen. This material was given in the milk. One calf died almost two months later but revealed no evidence of tubercular infection on post-mortem examination. Two months after feeding tuberculous material the remaining calf was given a subcutaneous tuberculin test, along with a healthy calf, and avian tuberculin was used. The experiment calf gave a good reaction but was not slaughtered at that time. De Jong<sup>11</sup> reported that avian tubercle bacilli can spontaneously infect man, ape, pig, bovine,

<sup>1</sup>Presented at the sixtieth annual meeting of the American Veterinary Medical Association, Montreal, Canada, August 27-31, 1923.

rabbit, rat and white mouse, while Schroeder<sup>12</sup> writes that the avian type lacks the power to serve as the cause of an epidemic or an epizootic occurrence of tuberculosis among mammals. In an article by Schalk<sup>13</sup> the statement is made that a few calves have been infected experimentally. Biester,<sup>14</sup> in work done in Illinois, reports that calves can be artificially infected by injecting macerated tuberculous organs of chickens, and that local lesions are produced by the injection of a pure culture of the mycobacterium of tuberculosis isolated from tuberculous chickens. Himmelberger and Bang have succeeded in infecting cattle with avian tubercle bacilli.



Fig. 1. Ten Head of Steers Used in the Experiment.

The experiment we are about to report upon was suggested to us as the result of some field observations made in Western Wyoming by state employes who were doing tuberculin testing. Several cases of the so-called skin form of tuberculosis were detected by the tuberculin test. From history that could be gathered, indications were that the skin form of the disease was being found upon farms and ranches where there was at the time, or had been, tuberculosis in the chickens. This immediately raised the questions: Can avian tubercle bacilli infect cattle? If so, will those cattle react to injections of ordinary bovine tuberculin? If they are infected, what is the relationship of this infection to the form of the disease that we ordinarily call the skin form of tuberculosis? It was with these objects in mind that the experiment was outlined.

## PROCEDURE OF EXPERIMENT

Ten head of range yearling steers were used in the experiment. These animals were good, healthy, rather typical, range steers of our Western country except for the fact that they were a little off color from our usual white-faced steer. (Figure 1 shows the steers used and illustrates the type). This was taken at the close of the experiment.

These steers were all tuberculin tested and found to be free from tuberculosis by all of the three tests used, namely, the ophthalmic, intradermal and subcutaneous tests.

## MATERIAL USED FOR INJECTION

It was found rather difficult to get virulent strains of the avian tubercle bacilli which were in pure culture. On November 18, two cultures which were pure and were virulent were received from the North Dakota Agricultural College. Subcultures were made onto glycerin-agar with a pH value of approximately 7.2. These were incubated and after being found to be pure cultures by microscopic examination they were washed off and made up into suspension with sterile water. From this suspension six experiment calves were injected on December 1, as is shown in table 1. Before injecting, an area was clipped, shaved, and disinfected with tincture of iodine. Every precaution was used to avoid outside infection.

TABLE 1. AMOUNTS INJECTED, WHERE AND HOW

Ear Tag No.	Seat of Injection	Kind of Injection	Amount of Injection	Approximate Number Organisms Injected
83	Post. upper portion left forearm	Intradermal	0.1 cc	28,800,000
92		Intradermal	0.2 cc	57,600,000
84		Subcutaneous	1.0 cc	288,000,000
85		Subcutaneous	2.0 cc	576,000,000
87		Intramuscular	2.0 cc	576,000,000
88		Intramuscular	1.0 cc	288,000,000
89	Not injected (Controls).			
91				
93				
81				

Note: Injections all made on December 1, 1922.

On the same date, from the same suspension, two healthy hens, nos. 1 and 11, were injected to prove the virulence, for chickens, of the cultures used in the cattle. The hens received the amounts shown in table 2.

TABLE 2—INJECTION OF HENS (VIRULENCE CONTROLS)

No. of Hen	Date Injected	Place of Injection	No. cc Injected	Approximate Number Organisms Injected
1	Dec. 1, 1922	Peritoneal Cavity	1.0 cc	288,000,000
11	Dec. 1, 1922	Peritoneal Cavity	0.5 cc	144,000,000

On February 19 both hens were given the intradermal test, avian tuberculin being used. At this time hen no. 1 was showing every symptom of acute tuberculosis. She was extremely emaciated, weighing only about one-third of her pre-injection weight. This hen showed no reaction to the tuberculin test. Hen no. 11 gave a good reaction, which showed us as a diffuse swelling of the wattle, which was hot and painful. Swelling began at the 24th hour following injection and still persisted at the 72nd hour following injection.

Hen no. 1 died and was autopsied on February 27. Examination revealed tubercular lesions throughout the abdominal cavity. Smears made from lesions in the liver, mesentery, intestinal wall, and skin, and stained by acid-fast method, revealed typical tubercle bacilli. Straight and curved rods, many of which were granular, were found and which had taken the acid-fast stain. On this date an emulsion was made from lesions in the liver and hen no. 111 injected, in order to retain organisms in a virulent form. At the time of injection of this hen no. 111 was very healthy, weighing  $3\frac{3}{4}$  pounds. She was tuberculin tested and gave a negative reaction.

On May 31, hens nos. 11 and 111 were both tested with avian tuberculin. Hen no. 11 showed a slight swelling of the wattle. Hen no. 111 showed marked swelling of the wattle or a good reaction at the 24-hour period following injection. This reaction persisted for 96 hours.

On June 3, hen no. 11 died and showed tubercular lesions throughout the abdominal cavity. Figure 2 gives an idea of the extent and location of these lesions.

During the progress of the experiment the calves were kept in a large lot isolated from other live stock. They were fed and

watered once daily, as is customary under range conditions in the winter. All the calves wintered very well on hay ration alone, consisting of alfalfa and prairie or native hay.

The first of April, four months after being injected, the calves showed the following lesions at point of injection:

*Ear Tag No. 84.* Swelling approximately the size of a black walnut, noted at point of injection beneath the skin. On palpation swelling was found to be hard and movable.

*Ear Tag No. 85.* Swelling at point of injection very similar to that in calf No. 84 but slightly smaller in size.

*Ear Tag No. 87.* At point of injection swelling was noticed, apparently all in the subcutaneous tissue, about the size of an average pecan.



Fig. 2. Lesions Found in Hen No. 11.

*Ear Tag No. 88.* This calf received an intramuscular injection but showed no lesions at point of injection.

*Ear Tag No. 83.* Showed no lesions at point of injection.

*Ear Tag No. 92.* Showed no lesions at point of injection.

Other than local lesions noted above, animals were to all appearances in healthy condition, as were the four controls.

#### RESULTS OF TUBERCULIN TEST

It was decided to give all the animals, including the controls, three tuberculin tests, namely, the ophthalmic, intradermal, and subcutaneous. On May 5, the calves were given the intradermal injection, B. A. I. tuberculin being used. As it was



impossible at this time to obtain ophthalmic discs, intradermal tuberculin was used for the ophthalmic test. The sensitizing dose for this latter test was placed in the left eye at the same time the intradermal injections were made. As calves had been running free in the lot, they were turned loose and kept in their usual environment. Readings were taken at the end of twenty-four hours on the ophthalmic test for evidences of any irritation in the eyes. Both eyes in all calves showed normal.

At the end of the forty-eight-hour period, observations upon the eyes showed nothing. Readings were also taken at this time (forty-eight hours) on the intradermal test and three of the calves (nos. 84, 87 and 88, as is shown in table 3) began to show a suspicious reaction. On this date, May 7, calves were tied up during the day to accustom them to being tied. They were turned loose in the evening and caught again the following morning, on which date the diagnostic dose of intradermal tuberculin for the ophthalmic test was given. This diagnostic dose was given exactly seventy-two hours following the sensitizing dose. The two-hour readings on the ophthalmic test, taken over a period of eight hours, were all found to be negative in all the calves.

On the intradermal test, commencing at the forty-eight hour period, readings were taken every twenty-four hours up to and including the one hundred twentieth hour. Three of the

TABLE 3—RESULTS OF INTRADERMAL TEST (MAY 5)

Ear Tag No.	May 7 48-hour Reading	May 8 72-hour Reading	May 9 96-hour Reading	May 10 120-hour Reading	Results
83	N	N	N	N	Negative
92	N	N	N	N	Negative
84	Suspicious	Thick 2X	Thick 2X	Thick 2X	Positive
85	N	Thick 2X	Thick 2X	Thick 2X	Positive
87	Suspicious	P3	P3	P3	Positive
88	Suspicious	Suspicious	Suspicious	Suspicious	Suspicious
89	N	N	N	N	Negative
91	N	N	N	N	Negative
93	N	N	N	N	Negative
81	N	N	N	N	Negative

In our ophthalmic and intradermal tests the symbols used and code followed are those described by Ernest and Lash<sup>13</sup> in their circular on "Tuberculin Testing of Livestock."

animals, nos. 84, 85 and 87, showed a positive reaction, while no. 88 could be called nothing more than suspicious. The results of the twenty-four-hour readings are tabulated in table 3.

*Subcutaneous Test*—As the calves had been running loose during the five months since injection with avian tubercle bacilli, they were tied up daily for a few days commencing May 7, to allow them opportunity to quiet down. Temperatures were taken at various hours during the day for several days but some of them continued to run high temperatures. It was not deemed advisable to inject them for the subcutaneous test until all the animals, including controls, had quieted down and the temperatures were down to normal. Various methods of feeding and watering were followed and it was finally found best to leave halters on the animals and let them run loose in the small lot. Leaving halters upon animals made it easy to catch them and they soon became quiet enough so that one could walk up to them. It was not until May 22, with continuous daily handling, that all pre-injection temperatures came down to normal. During the pre-injection-temperature period and the day on which the post-injection temperatures were taken, animals had access to water tank (but water was not very cold). They were fed in the evening on both days. Pre-injection temperatures and post-injection temperatures are shown in tables 4 and 5.

TABLE 4—PRE-INJECTION TEMPERATURES, MAY 22, 1923, FOR SUBCUTANEOUS TEST

Ear Tag No.	11:30 a.m.	2:15 p.m.	4:30 p.m.	9:15 p.m.
83	101.1	102.5	102.7	101.8
92	101.4	101.8	102.3	101.8
84	101.9	102.3	102.5	102.1
85	102.1	102.4	102.4	101.9
87	101.7	102.6	102.6	102.2
88	101.6	101.8	102.5	102.1
89	101.4	102.5	102.7	102.5
91	101.2	102.1	102.4	102.0
93	102.1	102.4	102.5	102.6
81	102.1	102.3	102.8	102.3

5 cc B. A. I. tuberculin injected at 10 p. m.

TABLE 5—POST INJECTION TEMPERATURES, MAY 23, 1923

Ear Tag No.	A. M.			12 M.	P. M.				
	6	8	10		2	4	6	8	10
83	1.6	1.1	1.8	2.5	1.7	2.8	2.7	2.6	1.9
92	1.3	1.1	1.7	1.4	1.8	2.2	2.5	2.7	1.7
84	1.9	1.6	1.9	3.0	2.8	3.0	2.6	2.4	1.5
85	0.7	0.8	1.8	2.6	2.2	3.2	3.3	3.2	1.8
87	1.2	0.8	1.8	2.7	2.2	3.3	3.2	3.0	1.9
88	1.9	1.0	1.8	2.2	2.5	3.0	3.0	2.3	2.2
89	1.6	1.6	1.8	2.0	2.0	2.0	2.6	2.2	2.0
91	1.0	1.0	1.8	1.2	1.8	2.8	2.7	2.8	1.7
93	0.9	0.9	2.0	2.2	1.5	3.2	2.6	2.0	1.7
81	1.6	1.2	2.0	2.0	2.0	2.7	2.5	2.9	1.6

In the accompanying graph, pre-injection and post-injection temperatures can be easily compared. Much to our surprise the post-injection temperatures did not show the rise which we would expect. However, one will note from the graph that animals which showed positive reaction to the intradermal test (nos. 84, 85 and 87) showed a somewhat elevated temperature over their pre-injection temperatures. These temperatures remained elevated for some time, as is shown.

#### SUMMARY

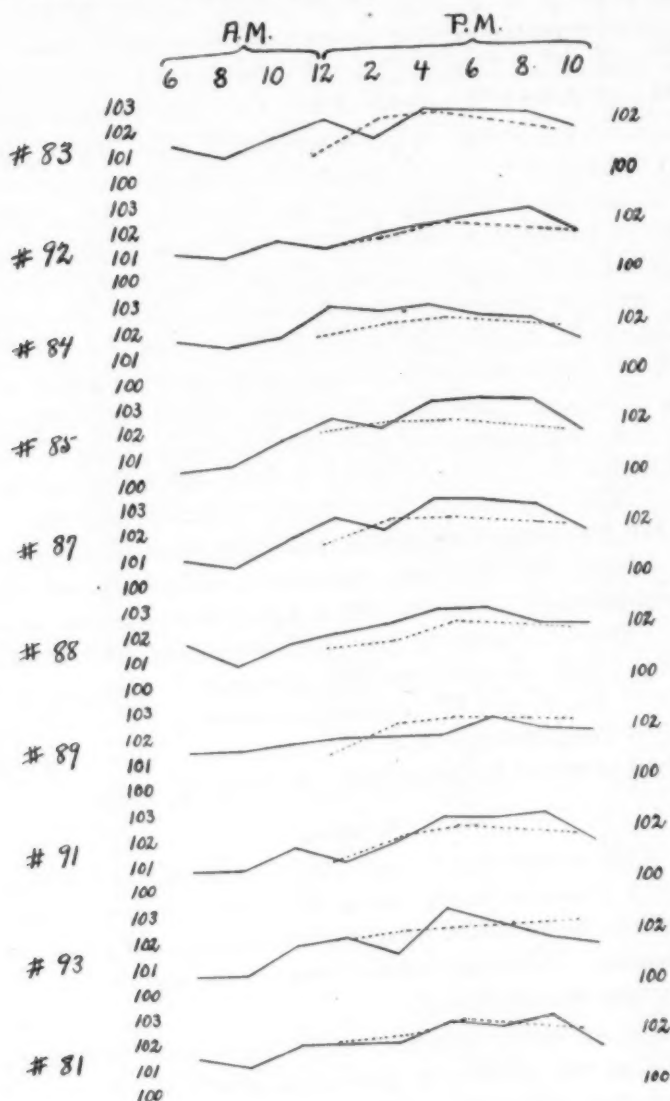
Our work would tend to prove that cattle can be infected with the avian tubercle bacilli when they are injected beneath the skin or into the muscular tissue with comparatively large numbers of organisms. When introduced between the layers of the dermis, no infection was produced.

Cultures of avian tubercle bacilli used were pathogenic for chickens as was shown by producing death in chickens which were injected with parts of the same suspension that was used in the cattle.

No reaction to the ophthalmic test was found in any calves showing lesions or otherwise.

Three very good intradermal reactions were found in two calves injected subcutaneously and one calf injected intramuscularly. One calf injected intramuscularly but with a smaller

amount than the last mentioned animal, gave only a suspicious reaction (not sufficient swelling to call a P. reaction).



Graph showing temperature curves.

Subcutaneous tests on calves which showed lesions and gave reactions to intradermal test did not give a rise of 2° F. or more above the maximum temperature observed prior to the injection of tuberculin, nor a temperature above 103.8° F. (This is what we usually consider a reactor.)

In injecting, 5-cc quantities of Bureau of Animal Industry subcutaneous tuberculin were used to insure that calves received a full 0.5 gram O. T. The lesions produced were identical with the lesions described in the so-called skin form of tuberculosis.

At the close of the experiment, the calves were all strong, healthy and in as good or better flesh than when started on the experiment.

#### CONCLUSIONS

Our work described above would indicate that the intradermal test is the most reliable test in detecting tuberculosis in cattle when they are infected with avian tubercle bacilli. The ophthalmic test gave no indications of infection. Boerner and Kimball<sup>16</sup> report a bull, with lesions of tuberculosis in the subcutaneous tissue, which a few months previous to their observation had successfully passed an ophthalmic and subcutaneous tuberculin test. This immediately raises the question in our minds: Might this animal have been carrying the avian tubercle bacilli? This would seem very possible in the light of the above and in view of the fact that artificial infection with that organism gave typical lesions of the skin form of tuberculosis.

Another point is raised: Could these several cases in which only suspicious reactions are obtained on the intradermal test and which on retesting with the subcutaneous method give negative reactions have any relationship to the avian infection? We are all aware that this is not unusual, as many workers use the subcutaneous test to check questionable reactions to the intradermal test.

#### FUTURE WORK

Further work should be done to study more carefully the natural infection of cattle with the avian form of the tubercle bacilli.

The three calves showing local lesions externally will be retained and the lesions found on palpation removed and studied. After a few months, the calves will be retested to see if they still react to the tuberculin test. If they do not, we would assume that they had only a circumscribed lesion. They will then be killed and careful and complete autopsies made.

#### ACKNOWLEDGEMENTS

We wish to thank Dr. B. F. Davis, former State Veterinarian, for his helpful suggestions and also Dr. G. W. Bond for his help



in tuberculin testing the animals before they were placed on the experiment.

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#### DISCUSSION

DR. R. C. REED: Mr. Chairman, I would like to ask Dr. Elder if in this work he at any time used an avian type of tuberculin or whether he always used an ordinary tuberculin in making these tuberculin tests; that is, after infection with the avian tubercle bacillus.

DR. SCHOFIELD: I would like to know whether the cattle, in the first case referred to, where the gentleman said certain herds had been tested and skin lesions were found and on these ranches chickens with tuberculosis also have been running, received the injection intradermally or subcutaneously? I, personally, fail to see how you can prove that the skin lesions that the inspectors are finding in our plants are due to the bovine type unless you make cultures from those lesions. You might be able to produce, with avian tubercle bacilli, a similar thing. That wouldn't settle the question as to whether the skin form was due to an avian infection, unless cultures were made from those skin lesions.

DR. ELDER: In answer to Dr. Reed's question, we always used the ordinary bovine tuberculin. We did that for the reason that we felt we should use, in our experiment, what was being used in the field.

In answer to the other question, the intradermal tests were the ones which pointed out the reactors in the field. At that time we did not have the experiments outlined and we did not make cultures from those lesions. However, I understood from the state officials that those lesions, when examined, showed acid-fast organisms. They did not say whether they were typical of the avian type or of the bovine type. Our experiment was outlined after those were found and we thought possibly there might be a relationship between the skin form and the avian type. We did not mean to leave the impression that all of the skin form of tuberculosis is caused by the avian organism.

The Faculty of the University of Pennsylvania School of Veterinary Medicine gave nine lectures, during the month of December, in connection with the Veterinary Extension work in the State of Pennsylvania.

A drive was recently conducted in Crawford County by the Pennsylvania Bureau of Animal Industry, in an effort to make that county a tuberculosis-free area.

## PORCINE ERYSIPELAS<sup>1</sup>

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That diamond skin disease is a mild or chronic form of swine erysipelas has been generally accepted for a number of years. The acute, fatal form of the disease has not been supposed to exist in the United States. Recently evidence has been accumulating indicating that erysipelas does occur in acute form and is the cause of some economic loss. Creech<sup>1</sup> found *Erysipelothrix porci* (*B. erysipelatis suis*) in the skin of hogs affected with diamond skin disease. Ward<sup>2</sup> isolated *E. porci* from sixteen out of twenty-two sets of legs of hogs affected with polyarthritis, advanced lesions being usually sterile. Giltner<sup>3</sup> found *E. porci* the apparent cause of an essential bacteremia, presumably the cause of the death of several pigs.

Having observed, in the course of post-mortem work at packing houses, the occasional association of diamond skin disease (urticaria) and extensive necrotic dermatitis with lesions of polyarthritis in early stages, and with septicemia and icterus, one of the authors of this paper began to suspect an etiologic relation of these several groups of lesions. In the spring of 1922 systematic observations were begun at one of the large packing-houses, in cooperation with Dr. J. B. Thompson, Veterinary Inspector, U. S. Bureau of Animal Industry. The immediate purpose was to determine what lesions were commonly associated with urticaria and necrotic dermatitis (rather commonly referred to as "frozen back").

In a period of three months (March 15 to June 15) one hundred ten cases were tabulated. In this tabulation "skin lesions" refers to distinctly rhomboidal urticaria (diamond skin disease), or necrotic dermatitis. These were frequently associated in the same subject. We had not yet learned to recognize a diffuse or irregular erythema that seems to characterize an acute form of the disease frequently associated with septicemic lesions. "Joint lesions" refers to an early stage of polyarthritis; in some cases only slight reddening of the synovia and of the villi of the synovial capsules, with slightly red or yellow periarticular infiltration. Other cases presented flocculi in the synovia and

<sup>1</sup>Presented at the sixtieth annual meeting of the American Veterinary Medical Association, Montreal, Canada, August 27-31, 1923.

periarticular fibrinous organization, causing slightly deforming arthritis, usually best observed in the stifle, hock, tarsal and carpal joints. "Gland lesions" refers to an enlarged, edematous condition of body lymph-glands, not immediately related to arthritic joints, with or without injection and hemorrhages. Arthritis evidently due to traumatism or other causes, and enlarged and edematous glands with related lesions accounting for them, were not recorded.

#### TABLE OF RELATED LESIONS

Skin lesions only . . . . .	20 cases
Joint lesions only . . . . .	20 cases
Skin and joint lesions . . . . .	19 cases
Skin and gland lesions . . . . .	16 cases
Joint and gland lesions . . . . .	13 cases
Skin, joint and gland lesions . . . . .	22 cases

Some of these cases presented, in addition, a soft dark or black spleen, not much enlarged, a few petechiae in kidneys, hemorrhagic body lymph-glands, petechiated lungs and p'aura, more rarely a slight pneumonia. In a few cases slight enteritis was observed. Icterus, from slight discoloration to the most intense, was observed in severe cases. Some eight or ten of those tabulated were condemned for septicemia or icterus.

It will be noted that of the one hundred ten cases tabulated, 20% showed lesions of the skin, joints and glands; 14½% had both skin and gland lesions; 17% had skin and joint lesions; and 12% had joint and gland lesions. A total of 63½% had two or three groups of lesions. It is reasonable to assume that lesions may be limited to the skin in mild cases, and also that polyarthritis may persist after the disappearance of skin lesions.

Having established, as we believed, a probability that these several groups of lesions are from a common cause, we began May 16 to select cases for laboratory study. Cultures were made from twenty-four cases. Some were selected to "feel out" the character of lesions that might be expected to yield *Erysipelothrix porci*. Among these were three cases of advanced polyarthritis, a diffuse erythema without other lesions, an icterus case with large black spleen, two cases that were probably cholera and a skin-necrosis case without other lesions. Cultures did not develop *E. porci*, or other known pathogenic organisms.

Individual descriptions of the sixteen other cases, with laboratory results, follow:

No. 1. Diamond skin lesions with acute, diffuse dermatitis, the inflammation extending into the subcutaneous fat in spots. Slight, acute polyarthritides, with fibrinous deposits in some joints. Body glands edematous. Spleen enlarged. Petechial hemorrhages on pleura. Cultures of *Erysipelothrix porci* were obtained from skin and joints.

No. 2. About sixty, typical, diamond skin disease lesions. Glands edematous, spleen soft. No pathogenic organisms isolated.

No. 4. Typical diamond skin disease lesions, with slight skin necrosis. Glands edematous, kidneys petechiated. No pathogenic organisms isolated.

No. 5. Extensive, acute diamond skin disease, with a few necrotic centers. Yellowish infiltration into subcutaneous fat one inch. Joints normal. Glands edematous. Spleen black, soft, not enlarged. Slight lobar pneumonia and a few subpleural petechiae. Cultures of *E. porci* were obtained from glands and skin.

No. 6. Diamond skin disease, numerous spots but small. Slight arthritis of sacro-femoral joint. Glands edematous. Spleen black, soft. Icterus pronounced. Hog condemned. *E. porci* was obtained from glands, kidney and spleen.

No. 12. Extensive diffuse and irregular urticaria, with some typical diamonds seem fading. Superficial necrosis on hocks and rump. Yellowish discoloration into subcutaneous fat. Glands hemorrhagic and edematous. No deformity of joints, but synovia thick, viscous, and stained rather highly yellow. Articular villi reddened. Spleen black, soft, not enlarged. A few petechiae in kidneys and subpleural. A slight local enteritis (part of jejunum) and congestion of related mesenteric glands. Cervical glands tuberculous. General, dirty-yellow discoloration. Hog condemned. Cultures of *E. porci* were obtained from heart-blood, kidney and joint.

No. 13. Urticaria (two rhomboidal areas, about two-inch sides) on top and side of shoulder. Seem fading. Possibly ship marks. Other erythematous areas, both discrete and diffuse, but irregular, on back and side. Carpal and tarsal joints considerably enlarged, with typical articular and periarticular conditions. Stifle not much enlarged, but has excess of straw-colored synovia and hypertrophy of synovial villi. All feet up to hocks and carpal appear bruised, with breach of continuity and necrosis. Related glands (iliac and prepectoral) much congested and edematous. Slight pneumonia. Kidneys slightly petechiated. Cultures from carpal joint and kidney. No pathogenic organisms isolated.

No. 15. Very acute dermatitis, several large spots extending into subcutaneous fat. A few doubtful diamonds. Necrotic areas on snout, under eye and on ear. A few petechiae on legs. Glands intensely congested, edematous and hemorrhagic. Spleen, black spots like in cholera. No arthritis. A few petechiae in kidneys. Hog condemned. No pathogenic organisms isolated.

No. 16. Skin presents numerous irregular red spots covering about one-third of back, sides and hams, superficially necrotic, redness extending sometimes into fat. Glands hemorrhagic. A little pneumonia. Spleen injected. One petechia in kidney. Part of ear necrotic. Skin, precaral gland, spleen and kidney yielded *E. porci*.

No. X. A precaral gland from a hog apparently of the same lot as No. 16, was taken for culture and *E. porci* isolated. The same description fits this hog. Some twenty or thirty cases of erythema, urticaria and skin necrosis were seen during the day, apparently same class of hogs, probably of one shipment, but as few of the skin lesions were typical, either of diamond skin disease or extensive necrosis, cultures were made from only these two, both of which were condemned for septicemia.

No. 17. Early stage of skin necrosis on back and over shoulder to ears, edges acute, raised. Glands slightly edematous and pigmented, with injected borders. One petechia in kidney. Spleen has one dark spot, size of a quarter. Liver firm. Lungs, diffuse redness, a few congested areas, possibly a little hepatization. Joints, slight, straw-colored, intra-articular and peri-articular infiltration. Cultural results negative (contamination).

No. 19. Was "suspected" as a "crip." No temperature taken. Skin showed acute urticaria over all parts of the body, legs and head, mostly irregu-



lar shapes, spots intensely red, skin thickened and superficially necrotic in patches. Inflammation extends into fat some distance. A few typical diamonds. Body glands enlarged, hemorrhagic, but not juicy. Synovial fluids and membranes slightly straw-colored. Spleen slightly enlarged, soft and black. A few petechiae in kidneys. Condemned for septicemia. Cultures from skin, glands, joint, spleen, liver and kidney. *E. porci* obtained from skin only.

No. 20. General erythema almost covering the body, some patches superficially necrotic, and small hemorrhages in skin; inflammation extends deep under necrotic areas, with yellowish tinge and dead look. All glands edematous and hemorrhagic peripherally. Kidneys had a few petechiae in the pyramids. Synovia slightly yellow. No pathogenic organisms isolated.

No. 21. Extensive urticaria, mostly confluent and irregular, but some typical diamonds. Slight superficial skin necrosis. Glands enlarged, edematous and hemorrhagic. A few petechiae in kidneys. Joints slightly straw-colored, peri-articular infiltration. Viscera passed on routine inspection, so had no special examination. Condemned for septicemia. Cultures from skin, glands and kidney all yielded *E. porci*.

No. 22. Skin showed extensive irregular urticaria, all parts of body, head and legs. (About half of surface reddened). Some areas superficially necrotic, inflammation extending one-half inch into fat. Some areas merely erythematous, others present distinct thickening of skin with raised margins. A few typical diamonds. No petechial hemorrhages as in cholera. Joints, straw-colored synovia (very slight color), and distinct straw-colored infiltration. Slight flocculation of synovia. All glands much enlarged, edematous, and congested to hemorrhagic. Many petechiae in kidneys, mostly cortical, smaller than usually seen in cholera. A few hemorrhagic areas in lungs, one to several lobules in area, many petechiae in lung substance, a few slight pneumonic areas. A few petechiae on valves of heart and in auricles, but no vegetative growths. Spleen enlarged (x8) a little dark and softened. Liver firmer than usual, bile very thick, granular and black. General color of carcass slightly icteric (a greenish-yellow tinge). Viscera practically empty. Two so-called cholera ulcers near ileocecal valve. Condemned for septicemia. Cultured from heart, spleen, kidney, skin and joint. *E. porci* isolated from skin culture.

No. 23. Diamond skin lesions intense, well scattered, superficially necrotic. Also erythema over large part of body. Joints show excess of stained synovia. Glands edematous and hemorrhagic. A few petechiae in kidneys and in heart. Lungs congested, with a little lobular pneumonia and petechiated. Spleen slightly enlarged and soft. Enteritis, two-thirds of small intestines. Slightly icteric. Cultures from heart, skin, gland, kidney and spleen. *E. porci* was obtained from two glands.

Most of the subjects, those tabulated, laboratory cases, and others observed but not recorded, were light hogs, dressing one hundred twenty to one hundred fifty pounds. Some were pigs, twenty to thirty pounds. A few were over two hundred pounds. The greatest number of cases were observed between March 1 and June 16, after which they were rather rare during 1922. The same seems to hold true for 1923, to this date.

Nos. 16 and X did not present typical diamond skin disease lesions. The urticarial areas were thickened, but irregular in shape. Laboratory results on cases Nos. 13, 15, 17 and 20 may have been influenced by use of culture media that had dried till the surface was "leathery." It had been thought advisable to keep culture tubes at the packing-house and perform inocula-



tions there, the result being dried media. The presence of cholera could not be definitely excluded in any of the cases.

In identifying *Erysipelothrix porci* the methods of standard bacteriological texts and of G. T. Creech were followed. The first nine cultures which we have considered to be *E. porci* were sent to the laboratories of the Bureau of Animal Industry, Washington, D. C., from which the following reply was received:

"Referring to your letter of February 8, relative to nine cultures of an organism forwarded to this laboratory for identification, you are advised that in their various characteristics, and also for their pathogenicity for pigeons, all of the strains were found to be typical of the *Erysipelothrix porci*."

The cultures sent the Bureau of Animal Industry included one culture obtained from a spleen specimen sent to the laboratory by a practicing veterinarian. The only history available was that a number of hogs in a herd had died of an acute condition.

# RECAPITULATION:

Tabulation of one hundred ten cases of diamond skin disease and polyarthritis (effort being made to exclude arthritis of traumatic origin and skin and gland lesions evidently due to causes other than erysipelas) indicates that certain, typical, skin, joint and gland lesions were associated in 20% of the cases, and that two of these groups of lesions were found in 43%, a total of 63% with "associated" lesions. Out of sixteen cases believed to present the lesions of erysipelas in mild to acute form, *Erysipelothrix porci* was isolated from body lymph-glands, heart-blood, spleen, kidneys, joints or skin in ten cases. No other cause for septicemia (bacteremia) was evident on post mortem, and no other suspicious organisms were found as a result of the cultures. No record of condemnations for septicemia or icterus apparently

TABLE I—TISSUES FROM WHICH E. PORCI DEVELOPED

Tissue	1	5	6	12	16	X	19	21	22	23
Skin	x	x			x		x	x	x	
Gland		x	x		x	x *		x		x
Joint	x			x						
Heart				x						
Spleen	†		x		x					
Kidney			x	x	x			x		

\*No cultures made from other tissues.

due to erysipelas was kept, as we had not reached a point of sufficient accuracy in diagnosis, and this report was not then contemplated. It is certain, however, that some fifteen or more cases presented lesions believed to justify the diagnosis of icterus or septicemia from porcine erysipelas, and in ten of these cases *E. porci* was found.

#### REFERENCES

- <sup>1</sup>Creech, G. T.: The bacillus of swine erysipelas isolated from urticarial lesions of swine in the United States. Jour. A. V. M. A., lxi (1921), n.s. 12 (2), pp. 139-150.  
<sup>2</sup>Ward, A. R.: The etiology of polyarthritis in swine. Jour. A. V. M. A., lxi (1922), n.s. 14 (2), pp. 155-161.  
<sup>3</sup>Giltner, L. T.: A fatal disease of young pigs apparently caused by the bacillus of swine erysipelas. Jour. A. V. M. A., lxi (1922), n. s. 14 (5), pp. 540-543.

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### PRIZES FOR PRACTITIONERS

At the first annual meeting of the Dixie Veterinary Medical Association, held in Memphis, Tenn., a short time ago, an innovation consisted of the awarding of a number of prizes to practitioners in attendance at the meeting. For the purpose of awarding these prizes, a committee was appointed by the President. The awards follow:

Three thousand cc of Memphis brand anti-hog cholera serum, donated by the Memphis Serum Company, to the oldest practitioner in attendance, awarded to Dr. D. A. Piatt, of Birmingham, Ala.

One dozen tetanus antitoxin, 1500-unit, syringe containers, donated by the Wilmer Veterinary Supply Company, of Memphis, to the practitioner traveling the longest distance to the meeting, awarded to Dr. W. G. Ross, of Arabi, La.

One thousand cc of Corn States clear anti-hog cholera serum, donated by the Corn States Serum Company, of Omaha, Nebraska, to the tallest practitioner attending the meeting, awarded to Dr. W. G. Warren, of Gallatin, Tenn.

One dozen pyoktanin blue, donated by the Swan-Myers Company, of Indianapolis, Ind., to the practitioner with the reddest hair in attendance at the meeting, awarded to Dr. M. J. Luster, of Clarksdale, Miss.

One thousand cc of Sihler clear anti-hog cholera serum, donated by the Sihler Serum Company, of Kansas City, Mo., for the shortest practitioner in attendance, awarded to Dr. L. J. Hinson, of Newbern, Tenn.

## IMMUNIZING YOUNG PIGS AGAINST HOG CHOLERA<sup>1</sup>

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The eradication of hog cholera depends largely upon the successful vaccination of young pigs. I mean by successful vaccination, a vaccination with the minimum stunting effect that will confer upon the pig an immunity that will protect against any infection to which the animal may be exposed and an immunity of long enough duration to fill the practical requirements of the swine grower.

This subject has been worked upon and discussed by Cahill, Birch, Niles and Rietz, Pickens, Welsh and Poelma, Dimock, Kinsley, Steel and others, but there still remain important points which are undetermined. The results of experiments have not always coincided, clinical evidence has differed and theories coupled with facts have as usual contributed their share to the confusion.

In our present method of vaccinating hogs against cholera, the serum and labor are the chief terms of expense to the owner. The rapidity and ease of handling and the quantity of serum used depend directly upon the size of the animal vaccinated. Therefore, we can say that with pigs growing normally, the younger the pig the cheaper the vaccination. Decreasing the expense without decreasing the efficiency is sure to increase the number of swine immunized against cholera and thus advance eradication.

In 1911, while in general practice in eastern Kansas, where corn and hogs are very important factors in the farming system, I used at first the method which at that time was called the "double treatment" on all sizes of hogs. This so called "double treatment" consisted of administering serum alone, the dosage being regulated by the live weight of the animal, and in a week or ten days followed it with an administration of serum and virus, the doses of each again being regulated by live weight. It is in this sense that I will use the term "double treatment" and not in the sense of a synonym for the simultaneous method as it has frequently been used.

<sup>1</sup>Read at the thirty-third annual meeting of the New York State Veterinary Medical Society, Ithaca, N. Y., July 25-27, 1923.

The results were good when animals were given the "double treatment." It was a very safe, efficient way of producing a solid, lasting immunity but too expensive, due to the large quantity of serum used in the two administrations, especially in the older animals. The necessity of handling the older animals twice was in itself expensive in time and energy consumed. More confidence in the simultaneous treatment as used today, without the preliminary treatment of serum alone, caused the old "double treatment" to be dropped when vaccinating a healthy herd of adult swine but it is still used to good advantage in a modified way in a herd sick with hog cholera and in young pigs.

In the two latter classes of swine the "double treatment" (I am using the term as just described) has been modified by extending the interval between the administration of serum alone and the simultaneous administration of serum and virus.

In an infected herd consisting of some sick animals and some that are still well but that have been exposed, with the owner's consent I administer serum alone to all animals in the herd except those in a moribund state and in about three weeks administer serum and virus to those that are normal.

Another rather common way of handling an infected herd is to take temperatures and give the simultaneous treatment to hogs with normal temperatures and even to some with temperatures slightly above normal, and treat with serum alone or not at all those showing high temperatures. The fault I find with the latter method is that by using the virus in a sick herd one can easily be blamed, and perhaps justly, by the owner for losses which are sure to follow treatment. I know of no conclusive proof that the simultaneous treatment on animals in the incubation period of hog cholera, especially near the end of the incubation period, is as safe to use as serum alone.

The modification of the "double treatment" as used on young pigs consists in administering one or two, or even three, serum-alone treatments at intervals of three or four weeks, followed by the simultaneous treatment when the pigs are from nine to twelve weeks of age. Cahill<sup>1</sup> reported in 1918, after finding that the "simultaneous treatment" on "baby pigs" did not confer a permanent immunity, that he adopted this modified method with very satisfactory results. Quoting from Cahill's paper on this subject, he says in referring to the "simultaneous treatment" on "baby pigs":

"As a state control method it was considered dangerous and was discarded. Since that time young pigs are treated as follows: At weaning time (usually six weeks in the East) pigs are given serum-only treatment; six weeks later they are given the simultaneous treatment, using 2 cc of virus. Since adopting this method outbreaks of hog cholera in herds so treated are practically unknown, regardless of the length of time the animals are kept or the amount of infection to which they are exposed."

A little later the question was raised by some as to whether a serum-alone treatment preceding the simultaneous administration of serum and virus would interfere with the latter in conferring a permanent immunity.

Clinical evidence had proved this point when the original double treatment was in use. Large numbers of hogs were vaccinated and permanently immunized by this method in 1910 and 1911. In 1919 Birch confirmed this with experiments and reported conclusively that a serum-alone injection preceding the simultaneous treatment would not interfere with the efficiency of the latter in producing a permanent immunity in swine so treated.

Birch, in the same report, uses the term "the follow-up treatment" for the modified double treatment which he recommended for general use and which has given excellent results.

The "follow-up treatment," as we use it, is in principle the same as Cahill described in the quotation I gave from his paper, except that instead of giving the first serum-alone treatment when the pigs are six weeks of age we frequently give the first serum-alone treatment at three weeks or younger and then instead of waiting six weeks and giving the simultaneous treatment, we frequently give another serum-alone treatment in three or four weeks and after three or four weeks more, when the pigs are nine or ten weeks of age, give the simultaneous treatment.

Birch prefers pigs to be twelve weeks of age before using the simultaneous method.<sup>2,3</sup> If the first treatment is given at three weeks of age, the second at six weeks, the third at nine weeks, the simultaneous at twelve, it would necessitate four handlings of the animals and the dose of serum would be graded about as follows: First treatment, 10 cc; second treatment, 15 cc; third treatment, 20 cc; fourth treatment, 20 cc plus 1 cc of virus. As a matter of fact, the intervals between treatments are usually lengthened and the simultaneous treatment administered when the pigs are nine or ten weeks of age instead of twelve weeks, thus eliminating one and sometimes two of the treatments.

We have had and are having excellent results from the use of



the follow-up treatment on young pigs. It is playing the game safe, so to speak, the same as the original double treatment was, but it has also the same faults the original double treatment had, that is, it is too expensive on account of serum used, veterinary fees, time and energy consumed in handling the pigs and added to this, there is the natural dislike which a good swine husbandman has for corralling his pigs, holding them up by hind or front legs and having hypodermics administered.

Since our confidence was shaken by Cahill's results it is of utmost importance that experimental data be compiled and published on a sufficient number of animals to inform us of the earliest possible age at which simultaneous treatment can be successfully given.

Niles and Rietz, and Pickens, Welsh, and Poelma have already contributed work on this subject and it is the main purpose of this paper to present additional evidence, not necessarily conclusive.

We consider three weeks a very good age for vaccinating. At this time pigs that were weak at birth have either died or grown stronger. They are easy to handle and since 10 cc or less of serum and 1 cc or less of virus is sufficient for pigs of this age, it means that the expense is comparatively low.

Few pigs under three weeks of age die of cholera. There have been some discussions regarding the nature of immunity against the disease which young pigs possess, especially in those farrowed by immune sows. Pickens has found, and it will also be seen in the following experiment, that a large percentage of pigs suckling immune mothers have enough immunity at three weeks of age to protect them against an injection of potent hog cholera virus without any injection of serum whatsoever. The influence which the presence or absence of the immunity present in young pigs has upon the immunity conferred by the simultaneous treatment has also been questioned and discussed.

In 1919 Birch<sup>4</sup> wrote on these points as follows:

"What is the essential difference between young pigs that receive permanent immunity as a result of simultaneous treatment, and those that do not? Without reasonable doubt the difficulty is to be referred to the absence of persisting natal immunity on one hand and to its presence on the other. At least we have before us the facts that natal immunity will persist in many pigs and disappear in others, and coinciding with these facts we have the knowledge that simultaneous treatment confers permanent immunity in some pigs, and fails to confer it in others. And we know, in general terms, that active immunity can be produced only in

<sup>4</sup>The Cornell Veterinarian. Vol. IX, No. 2. April, 1919.

animals that at the time of immunization are susceptible to the particular disease against which we seek to immunize. We know also that pigs given simultaneous treatment after they have attained an age when all can be regarded as susceptible are rendered permanently immune by the treatment. The fact that some "baby pigs" become permanently immune as a result of simultaneous treatment, seems to indicate that the presence or absence of natal immunity in young pigs is a matter governed by age and predetermined, individual characteristics, rather than a matter of milk diet as is so frequently asserted.

"Incidentally it is interesting to observe that although natal immunity and serum-alone immunity in young pigs are regarded as being of the passive type, there appears to be a distinct difference between the two: if virus and serum are given while natal immunity still persists, active immunity is not conferred; but virus and serum administered during the existence of passive immunity due to serum alone, usually, if not always, produce active immunity."

From the reports of hog cholera serum producers and some practitioners who have found adult swine susceptible after having been given the simultaneous treatment as "baby pigs," it has seemed at times that the immunity in the very young animals of this species differs from any artificial immunity conferred by the serum-alone treatment. Peculiarities of the very young in other species have been noticed, for example: toxicologists have reported that young puppies tolerate strychnin better than do older dogs, young children tolerate calomel better than do adults. Another example that may be still more closely analogous is the immunity of infants to parotitis or mumps.

On the other hand a peculiar susceptibility may exist in the very young which is not present in adults, as is seen in the susceptibility of children to scarlet fever and diphtheria. A peculiarity of this nature may exist in very young pigs. It may be in the nature of a natal immunity such as Birch explained in the quotation given. The presence or absence of this natal immunity in the very young may influence the efficiency of the simultaneous treatment when it is administered to this class of swine as also explained by Birch. But, judging from the observations made in the experiment which follows, I would say that if a natal immunity different from any artificial immunity does exist in pigs, that it exists for a very short time only and that at three weeks of age the pig has a passive immunity produced by antibodies which it is obtaining in the mother's milk.

This passive immunity is like the passive immunity conferred upon the pig by the injection of anti-hog cholera serum. It may vary in grade. If the pig is getting a good flow of milk from an immune mother, even though it may be exposed to infection it is safe from the disease. If for any reason the milk-flow is diminished, or if some of the smaller animals in the litter

are fought back by more thrifty ones, danger from the disease increases due to the decrease of antibodies taken into the system. In other words, a certain quantity of milk containing antibodies is necessary to protect the pig against cholera in this case, the same as it is necessary to introduce a certain quantity of antibodies when injecting anti-hog cholera serum simultaneously with hog cholera virus, as is done in the simultaneous method to protect the pig against the disease. It has long been known that when pigs are weaned they become susceptible.

The following experiment gives some light on these points as well as on the main question which has already been given as the purpose of the work, namely, to learn if simultaneous treatment will produce a solid, lasting immunity in pigs three weeks of age.

In order that conditions might be carefully controlled and close observations made, it was decided to breed sows and raise pigs for this experiment. The boar and sows were immune to cholera. All animals used in the experiment were grain-fed.

From ten sows we had sixty-four pigs reach the age of three weeks. No pigs died after they were two or three days old until after vaccination. During this time, prior to vaccination, they were kept in a hog-house where there was considerable chance for exposure to hog cholera but all remained well. At three weeks of age all pigs in each litter except one were given ten cc of stock anti-hog cholera serum and one cc of virus. The injection of serum was made into one axilla and the virus into the other. The one remaining pig in each of the ten litters was given one cc of the virus and no serum. Three weeks after treatment, when the excretions of the pigs were considered to be free from virus, the pigs were dipped in a 2% lysol solution and moved to cholera-free grounds. They were grain-fed for five months, then moved to pens that were kept clean but where no effort was made to keep cholera contamination away. At the time of this change each pig was given two cc of a potent hog cholera virus by intra-axillary injection.

Of the sixty-four pigs vaccinated at three weeks of age, fifty-eight lived to receive the trial injection of virus five months and three weeks later. Six had died between the time of simultaneous treatment and the time of the trial injections. Two of the six were the only pigs in the litter (No. 10) as is shown in the accompanying table, and were peculiar pigs from time of birth. They were abnormally small when born and at three weeks of age one

had developed to be exceptionally fat and chubby, the other very small and lean. When the simultaneous treatment was administered to this litter of two, the lean one was treated with virus alone. The fat one was given the serum and the virus. The latter died in ten days after injection and showed hog cholera lesions. The pig that received the virus alone died in twelve days and showed practically the same lesions as its litter mate that had died in ten. I am unable to explain the abnormally small size of these two pigs at birth, their freakish development to three weeks of age, their death ten and twelve days after treatment or the lesions found on autopsy.

Another of the six pigs that died during the period stated was one in litter No. 13 which had received the simultaneous treatment. It became sick eight days after having been vaccinated, at three weeks of age, and died two days later or ten days after the injections. Lesions found were suspicious of hog cholera. We injected a cholera-susceptible pig with one cc of the heart-blood and a rabbit with one-fourth cc of the heart-blood. Both the pig and rabbit remained well. The pig used to aid in this diagnosis was injected later with a hog cholera virus of known potency and became sick with the disease, proving its susceptibility, and the absence of hog cholera in the pig of litter No. 13 that died. The fourth of the group that died had a bad scrotal hernia and died following castration. The fifth became runty and died; autopsy revealed a very bad infestation of ascarids. The sixth and last became runty; autopsy revealed a chronic peritonitis, cause undetermined.

After the trial injection of the fifty-eight head temperatures were taken on each animal for seven days as shown by the accompanying charts.

TEMPERATURE CHART FOR LITTER 6

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	102.1	105.9	101.4	102.6	102.8	102.0	105.4	102.2
2	102.2	104.0	102.2	102.0	103.8	103.2	104.0	103.2
3	102.2	102.0	103.7	102.8	104.8	102.0	103.2	104.0
4	100.6	102.2	102.9	102.6	102.0	101.4	102.2	101.0
5	102.3	103.1	103.4	103.8	103.6	101.3	102.2	102.1

TEMPERATURE CHART FOR LITTER 8

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	100.9	103.4	102.9	103.0	102.6	101.0	102.7	102.6
2	100.0	102.2	103.4	102.4	103.8	101.4	102.3	102.7
3	102.2	102.9	101.6	102.6	103.6	101.4	101.3	102.2
4	101.2	102.4	101.2	101.0	102.4	102.3	102.2	101.8
5	100.6	102.4	100.9	103.8	101.8	102.8	102.6	101.6
6	101.0	102.5	101.7	102.1	102.6	102.3	101.9	101.8
7	100.0	102.1	101.6	102.8	102.7	103.0	102.0	101.5
8	100.4	101.9	103.1	102.8	102.8	102.6	101.0	101.5
9	102.4	100.4	105.1	101.8	103.6	101.3	101.6	101.2

TEMPERATURE CHART FOR LITTER 12

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	104.4	103.3	103.2	104.3	104.0	102.6	104.0	103.6
2	104.0	103.2	103.6	102.9	101.4	103.0	102.0	103.0
3	103.3	103.9	104.0	104.6	104.4	104.8	103.8	104.0
4	102.0	101.4	102.8	103.3	103.0	103.6	103.5	104.8
5	104.0	102.8	103.4	103.7	103.0	102.4	103.3	102.8
6	102.4	103.1	103.4	103.8	103.6	102.3	103.4	103.8
7	102.4	103.3	102.2	104.2	102.6	103.0	103.3	103.8
8	103.4	103.0	101.8	102.4	104.2	102.9	103.0	103.3
9	102.6	102.8	102.8	103.8	104.0	103.2	103.7	103.6

TEMPERATURE CHART FOR LITTER 11

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	102.0	104.0	103.8	104.3	103.1	103.8	102.0	103.6
2								
3	101.2	103.6	103.0	103.8	102.8	103.8	103.8	102.8
4								



TEMPERATURE CHART FOR LITTER 1

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	102.1	102.9	103.8	103.2	103.1	101.5	103.2	102.0
2	101.4	103.8	102.0	104.2	104.5	104.1	103.8	103.8
3	102.0	103.4	104.8	103.8	103.0	102.8	103.2	103.6
4	102.6	103.9	104.4	104.4	101.6	101.3	102.1	104.6
5	101.8	103.6	103.4	103.1	102.8	101.3	104.1	103.6

TEMPERATURE CHART FOR LITTER 13

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	102.4	100.8	103.4	102.2	102.1	101.8	102.7	101.9
2	102.2	103.0	103.2	103.6	102.3	102.7	103.4	102.3
3	102.6	102.8	100.7	103.2	102.2	102.6	100.7	102.3
4	103.4	103.2	102.0	102.6	102.1	101.4	101.6	102.9
5	102.0	102.4	103.4	102.3	102.6	102.4	101.8	102.1
6	102.8	103.0	103.0	104.4	103.7	102.6	102.8	102.3
7	102.6	102.6	101.8	103.8	102.1	103.4	104.5	103.1
8	101.8	102.9	101.6	101.6	102.6	104.2	103.4	103.0
9	102.4	102.2	103.0	104.0	102.4	102.4	103.4	102.0

TEMPERATURE CHART FOR LITTER 4

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	102.7	102.0	102.4	102.2	101.1	103.2	100.6	102.0
2	102.6	102.2	102.7	101.2	100.4	102.1	101.7	101.0
3	103.0	103.0	102.1	101.6	102.8	102.2	102.6	101.8
4	102.7	102.6	102.6	102.2	102.0	103.4	102.0	103.1
5	102.4	103.2	102.6	101.4	102.7	102.6	101.2	100.8

TEMPERATURE CHART FOR LITTER 5

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
2	101.8	102.2	102.0	102.6	102.0	102.0	101.4	
3	103.2	101.7	102.8	103.4	103.0	102.9	102.5	
4	103.0	102.4	103.4	103.2	103.0	102.5	102.4	
5	103.6	103.6	103.4	103.2	102.2	102.6	103.4	
6	102.4	103.2	102.0	104.0	102.7	102.4	102.8	
7	102.8	103.7	103.6	103.0	103.4	103.7	101.8	

TEMPERATURE CHART FOR LITTER 9

Pig No.	Day of Injection	Post-Injection Temperatures						
		1 da.	2 da.	3 da.	4 da.	5 da.	6 da.	7 da.
1	103.5	102.6	102.6	102.3	103.3	103.6	101.6	103.4
2	102.2	102.3	103.3	103.0	103.4	102.4	101.6	103.3
3	102.8	102.4	102.0	101.6	101.9	102.9	102.6	103.0
4	103.1	103.4	99.8	101.9	100.4	102.0	102.7	101.8
5	102.8	103.0	101.7	102.0	101.2	102.6	102.5	102.4
6	103.0	102.4	101.6	101.5	102.0	101.4	101.1	102.1
7	102.0	104.2	101.8	102.2	103.4	101.3	101.4	103.9
8	103.3	102.0	101.8	101.2	103.1	102.4	101.4	102.2

In no case did we get a characteristic rise in temperature, inappetance, or sickness in any form. The pigs that had received virus and no serum at three weeks of age were in no way different from the ones which had received the simultaneous treatment.

The plan of the experiment is given in brief in table I.

In each case after a litter had been vaccinated, a cholera-susceptible pig was injected to check the potency of the virus. This was also done after each litter had been given the trial injection. In each case the virus was found to be very potent.

TABLE I

Body mark for identification of litters	Number of pigs given simultaneous treatment at 3 weeks of age (10 cc serum 1 cc virus)	Number of pigs given 1 cc of virus at 3 weeks of age	Number of pigs given trial injection of 2 cc of virus-alone, 3 months, 3 weeks after treatment	Results of the trial injection
8	8	1	9	Remained well
6	4	1	5	" "
1	4	1	5	" "
12	8	1	9	" "
10	1	1	0	" "
11	3	1	2	" "
13	9	1	9	" "
4	4	1	5	" "
5	6	1	6	" "
9	7	1	8	" "
Totals	54	10	58	

## CONCLUSIONS

From the results obtained in this experiment, it seems that a solid, lasting immunity is conferred by administering serum and virus, by the simultaneous method, to pigs when three weeks of age if farrowed by and suckling immune sows. It also seems that pigs under these conditions have sufficient immunity to protect them against the injection of one cc of very potent virus and that after this virus-alone injection they are permanently immune. The immunity which the pigs had prior to vaccination in no way prevented the conferring of a solid, lasting immunity whether vaccinated by the simultaneous method or virus alone.

When the simultaneous treatment is administered to pigs three weeks of age, ten cc of serum at  $1\frac{1}{4}$  cents and one cc of virus at two cents makes the cost for material  $14\frac{1}{2}$  cents per head. If the follow-up treatment is used to produce the same results with the scale of dosage I have given, figuring on two treatments, which is the minimum number used in this method, ten cc of serum alone and twenty cc of serum with one cc of virus in the final treatment, makes the cost  $39\frac{1}{2}$  cents per head. In the virus-alone treatment, in which we used one cc of virus with results as satisfactory as those obtained from using the simultaneous method, the cost per head is two cents. This last method, due to difference in expense may, under certain conditions, find a place in the list of methods of immunizing swine against cholera and may furnish one of the cheapest means of accomplishing the end desired.

The question is now, how much evidence of this nature must be secured before we are justified in changing methods in general practice. Hog cholera breaks are among the most disagreeable experiences that the practitioner can have. It is impossible to cover individual cases which may be met in swine practice. There are almost numberless conditions to influence one in choosing the method or methods of immunizing a herd against cholera. A knowledge of the various methods and of the experiments and experiences which originated and established them are necessary.

On the strength of the results obtained by Pickens, also Niles and Rietz, and the experiment just given, we are proceeding with caution to vaccinate young pigs by the simultaneous method and with virus-alone. However, it is only in our own herd, and with the consent of an owner who can be made to understand the situation, that this is being done. It is by proceeding under such circumstances that we hope to be able to learn the true worth of the methods which give promise of lowering the cost of immunizing young pigs against hog cholera.

#### REFERENCES

- <sup>1</sup>Cahill, E. A.: (1919) Jour. Amer. Vet. Med. Assn., liv, n. s. 7 (4), p. 314.  
<sup>2</sup>Birch, R. R.: (1919) Cornell Vet., ix (2), p. 91.  
<sup>3</sup>Idem (1923) Cornell Vet., xiii (2), p. 168.

### WATCH OUT FOR JOHNE'S DISEASE

John's disease is gradually spreading throughout the United States. It is apparently far more prevalent than was formerly supposed. Dr. B. A. Beach, of the University of Wisconsin, has received post-mortem material from twenty veterinarians in seven different states. The diagnosis of this disease can be definitely determined by the use of "Johnin." The Bacteriological Department is supplying veterinarians with this material for diagnostic purposes. Dr. Beach has tested 300 head of cattle in sixteen different herds, finding seven reacting to the disease. Only two of these herds had been tested before. Material sent to the laboratory this year has revealed eight cases in Wisconsin cattle. As the traffic in pure-bred cattle increases, it is obvious that more attention must be paid to this disease. Its slow progress and insidious nature does not readily alarm the owner, as would be the case with a more acute disease, and veterinarians should be on the look-out for it, in beef as well as dairy cattle.

## THE A. V. M. A. AND INFECTIOUS ABORTION OF CATTLE

By WARD GILTNER, *East Lansing, Mich.*

*Dean of Veterinary Medicine, Michigan Agricultural College*

No dangerous infectious disease of man or the lower animals has ever been successfully controlled or eradicated except after the establishment of an enlightened public opinion. Bovine infectious abortion will be no exception to this rule. An educational campaign should be launched by the American Veterinary Medical Association against this disease. Such a campaign, to be successful, must be based on facts and an intelligent interpretation of such facts. No attempt should be made to put across a program not firmly established on experimental and observed fact.

The Association should adopt a policy of employing the organs already in existence to inform the live stock owners and veterinarians of the facts concerning bovine infectious abortion and of the measures that should be adopted respectively by each group to utilize these facts in a practical plan for attacking the disease.

As respects the live stock owners I believe that they can be reached by authoritative statements emanating from the Association, covering in intelligible language the points that these men should know. Such statements might well reach the live stock men through the medium of the public press, agricultural press, experiment station and agricultural extension publications and especially through papers prepared by the state veterinary colleges and live stock sanitary authorities of the various states. Such statements should deal with facts and their proper interpretation; they should be hopeful but conservative; they should state the seriousness of the situation but should not tend either to discourage or to make light of the case. The live stock owner should be impressed with the idea that the control of this disease is a problem that can be solved, not by legislation or regulations, not by public officials or inspectors, but by himself heartily and intelligently cooperating with his local practicing veterinarian.

The part to be played by the veterinarian is crucial. In the first place much dependence now rests and will continue to rest on those engaged in patient, painstaking and costly research on



this disease. Their responsibility lies not only in getting results as rapidly as possible but also in assisting in interpreting those results and in refraining from releasing matter that is misleading, confusing or inaccurate. Steps should be taken to provide liberally for further research on the nature of this disease. Veterinary education should adequately appraise its responsibility in the matter of training men *in curriculo* and *extra curriculo* to serve animal husbandry and thus mankind. There can be no control of bovine infectious abortion or of any other disease of such insidious and protean aspects in the absence of a highly educated and nobly inspired body of men who keenly sense their responsibilities. Therefore there is reason to view with alarm the lack of incentive for veterinary education, and one will fail to find any solution for the abortion problem outside of a re-awakening of interest in more vigorous and still higher type of veterinary college training with generous governmental backing.

Very little is to be expected at the present time from federal, state or local governmental interference, through legislation or regulation, although careful steps in this direction must be taken. The great hope rests on the private practitioner. Bovine infectious abortion can be measurably suppressed through and only through the efforts of the well trained, alert and tactful veterinarian who is willing to identify himself with a community and to cooperate with the live stock owners in solving their problems. There is no better way of reaching the live stock owner with the facts of abortion disease and with the plan for controlling it than through the local practitioner. Steps should be taken to insure a continuing supply of well trained practicing veterinarians, to assist those already in practice to meet their responsibilities and no movement should be tolerated which tends to weaken the position of such men in their communities.

An outline for the control of bovine infectious abortion can be undertaken most conveniently if we consider three possibilities in so far as herd infection is concerned; the non-infected herd, the mildly infected herd and the badly infected herd. In combatting this disease the herd must be the unit for consideration—not an individual or a group of individuals in the herd.

Obviously it is first necessary to determine into which class a herd falls. It is probable that the owner with or without the advice of his veterinarian will conclude that his herd is non-infected in the absence of any reasonable suspicion of the

presence of the infection. There can be no objection to this conclusion so far as the protection of this herd is concerned. It is only in the purchase of animals from such a herd that more conclusive evidence of the true status of the herd is essential, or perhaps in case of the introduction into such a herd of non-infected susceptible animals. The serum tests are the best means of determining the exact condition of the herd as respects infection with *Bact. abortus*. No bovine animal should be introduced into a non-infected herd until it is shown by serum tests that such animal is free from infection, and no bull should be used to breed animals in this herd unless the bull is known to be free from infection as determined by serum tests and known to be used only on non-infected cattle. Animals in the non-infected herd should not be pastured with animals not known to be free from infection. Of course there should be no occasion for using serum, vaccines or bacterins.

The distinction between a mildly and a badly infected herd may not be made dogmatically or categorically, but there is a distinction and it is of value to undertake to make it in the treatment of herds affected with infectious abortion. These classifications represent tendencies rather than states. The mildly infected herd is one, perhaps without regard to the percentage of animals involved, in which there is a favorable outlook for the suppression or eradication of the disease with the application of a rational plan of treatment. The badly infected herd is one in which there is a tendency for unfavorable conditions to persist or to become aggravated. Obviously it is only by studying the condition of the herd and by applying a system of treatment that one can come to a conclusion as to the status of the herd. The line of treatment for the two types of herds is at variance in certain important respects and it is important that procedures adapted only to the treatment of a badly infected herd should not be applied to the mildly infected herd. Difficult as it may seem, therefore, to make the distinction, no effort should be avoided to make it.

Mildly infected herds should be treated according to the degree of infection and value of infected animals. In the first place, by repeated serum tests, the condition of each animal should be recorded. If only one or a very few animals are found to be infected it may be desirable to dispose of them to the butcher or they may be put into a badly infected herd. In any case they must be isolated so as not to spread the disease

to the rest of the herd. If a large number is infected, reasonable isolation, sex hygiene and stable sanitation must be practiced and blood tests continued on the entire herd to determine whether the disease is spreading or being suppressed. In the former case it may be necessary to treat the herd as a badly infected herd, in the latter case treatment may be as indicated above for non-infected herds. No new animals should be introduced into the mildly infected herd until it has been determined what the outcome of the treatment is to be. If the infection is at the point of complete suppression, the herd may be treated as in the case of the non-infected herds; while if the disease continues to spread, it may be wiser to consider it as a badly infected herd in respect to the introduction of animals. Animals may be sold from the mildly infected herd to go into the non-infected herds only when repeated serum tests have shown the absence of infection. Vaccines (the only biological preparations worth considering in a pure *Bact. abortus* infection with our present knowledge of their action) should not be used if it is hoped to eliminate the infection from the herd. If vaccines are used the herd may as well be classed and treated as a badly infected herd.

The badly infected herd may be attacked from many angles. As has been done repeatedly it may be disposed of by the sale for slaughter or by dispersal. The latter method is permissible only if the animals are to be introduced into badly infected herds except in case of members of the herd that are proved by serum tests to be free from infection. Such animals may be sold as free from the disease but coming from a diseased herd. If it is not hoped to eliminate the infection from the herd but only to reduce the number of abortions, then and only then may live cultures (vaccines) of *virulent* bacteria be employed. It must be expected that in this case all serum-testing will be greatly interfered with.

It appears to us that the secret of success in the use of biologics for the prevention or control of infectious abortion lies in a study of the development of so-called vaccination against typhoid fever. While the very successful typhoid vaccine, so-called, is in reality a bacterin or dead culture, the key to its success lies in the strain of *B. typhosus* utilized, I believe, first by Sir A. E. Wright. Not any or every strain of *B. typhosus* is agglutinable or able successfully to protect against typhoid fever. It is reasonable to expect that not any or every strain of *Bact. abortus* will (assuming that the general proposition is inherently possible)

protect against infectious abortion. It has occurred to us that, since dead cultures or bacterins have thus far signally failed to meet the needs of either a protective or curative treatment, the problem consists in the selection of a living strain possessed of high antigenic and low or no pathogenic properties. Furthermore, its antigenic properties must partake of the nature of antigenesis in the sense of stimulating the production of protective antibodies, not simply antibodies, agglutinins and complement-fixing, for instance. In our laboratory Huddleson has been working for some time with what, we feel, is such a culture. He will announce his results in due time.

If vaccines in their present state of development are used, no further steps should be required except that isolation, sex hygiene or stable sanitation should be practiced at the time of calving and abortions, especially in order to prevent sterility and complications. There is very little evidence to show that the bull need be considered except from the standpoint of potency and presence of other infections. If it is hoped to eliminate the disease from the herd the problem is serious and partakes of the nature of a long campaign. As in the case of the non-infected herd and the mildly infected herd, but especially in this case, success depends absolutely on the services of the well trained, practicing veterinarian. There are no hopeful recommendations in the absence of the well qualified practitioner who is *en rapport* with his client.

By means of clinical observations, serum tests and other laboratory aids the true condition of the herd should be determined from time to time. Eliminate all unhelpful or permanently non-productive animals from the herd. Isolate, as far as facilities will permit, all animals that can be shown to be spreaders of *Bact. abortus*, or other infective agents, especially when they are actively and grossly spreading the disease, as at parturition or abortion. Practice rigid sex hygiene and stable sanitation but always within reason and for a purpose other than to be doing something. Introduce no non-infected animals into the herd unless it be essential for breeding purposes. Keep the bull sexually clean by mating with sexually clean cows. Sell only infection-free animals, except for immediate slaughter, or infected animals only to infected herds.

In herds where abortion and its complications exist and where a system of laboratory tests fails to indicate the presence of *Bact. abortus* there is presented a problem just as serious and

one in which every known precaution based on the bacteriology of infectious diseases should be taken to prevent the spread and to eliminate it.

The American Veterinary Medical Association has generously and intelligently supported the study of bovine infectious abortion. It should continue to do so in cooperation with the United States Live Stock Sanitary Association, or any other agency willing and able to cooperate. It is gratifying to note that at the recent meeting in Montreal the Association went on record as endorsing its previous actions and as pledging itself to further efforts. The report is brief and worthy of inclusion in this paper.

"Your committee has had two meetings in the course of the year, at which all questions pertaining to bovine infectious abortion were carefully discussed. It was found during the discussions that nothing radically new, or of real importance, has been discovered since the last report of the abortion committee was presented that could be added to previous reports, or that makes a revision of the statements made in previous reports necessary.

"The very nature of bovine infectious abortion is such that rapid acquisition of knowledge regarding it cannot be expected, and your committee, while it recognizes the great importance of placing every newly discovered fact before the Association without delay, together with the significance it may have, does not believe that it is desirable to present a lengthy report unless it can impart something that may have real value in the sense that it is something which has not become generally known, or in the sense that it is serviceable for the rectification of existing beliefs.

"Owing to the great importance of infectious abortion, your committee recommends that a committee on the subject be kept in existence, particularly as many investigations are now in progress and have been planned, the results of which, as soon as they are available, should be imparted to the Association."

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### KANSAS VETERINARIANS PLAN BIG MEETING

The twentieth annual meeting of the Kansas Veterinary Medical Association will be held in conjunction with the Third Annual Conference of Kansas Veterinarians, in the Veterinary Department of the Kansas State Agricultural College, at Manhattan, February 6-7-8, 1924. Besides a number of Kansas practitioners and the members of the K. S. A. C. Veterinary Faculty who will participate in the program, the following veterinarians from outside the state will contribute: Drs. A. T. Kinsley and F. F. Brown, of Kansas City, Mo.; Dr. E. C. Schroeder, B. A. I., Bethesda, Md.; Dr. W. L. Boyd, of the University of Minnesota; Dr. H. Preston Hoskins, Secretary-Editor of the A. V. M. A., Detroit, Mich.

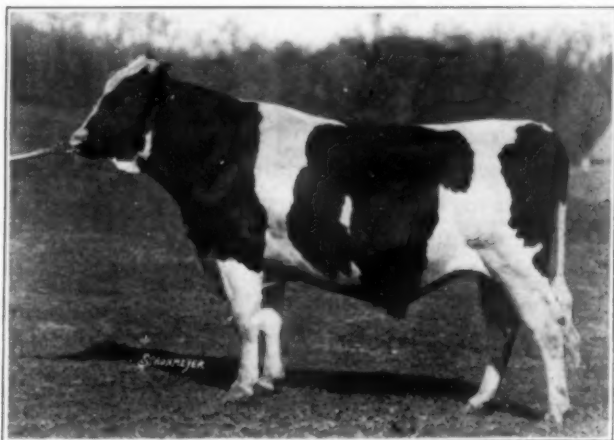


## INDOLENT ULCER OF GLANS PENIS SUCCESSFULLY TREATED BY ELECTROCOAGULATION

By C. C. PALMER, Newark, Del.

*Delaware Agricultural Experiment Station*

The bull shown in the accompanying photograph developed an indolent ulcer upon the right side of the glans penis about one inch from the free end of the organ, which seriously interfered with his ability to breed. The case was under treatment throughout a period of several months, but no improvement resulted until electrocoagulation treatment was given, which induced complete recovery. As electrocoagulation is somewhat new in veterinary practice and as considerable difficulty was encountered



The Subject of the Operation

in securing the penis, for the purpose of applying the treatment, this case is being reported in the hope that others encountering similar cases may be benefited somewhat, as a result of our experience.

The cause of the ulcer was not established. The bull was away from home at the time the ulcer made its appearance. Later when the breeder leasing the bull was questioned about the case he stated his veterinarian had examined the bull and thought the trouble had been induced by the use of "too strong" antiseptic solutions in irrigating the prepuce. Examination of the bacterial flora of the prepuce revealed a mixed type of infection,

and no single species of bacteria was incriminated as the specific cause. It is quite probable that the "too strong" antiseptic douches acting as a chemical irritant paved the way for pathogenic bacteria normally present in the prepuce, but which cannot attack normal healthy tissue.

The diseased penis did not interfere with the desire of the animal to copulate. His services were prompt, and the spermatozoa were ejaculated in normal numbers. The only noticeable symptom was a slight hemorrhage that commenced at the time of erection, and which was augmented greatly by the act of copulation. After dismounting from the cow the blood ran in a small stream from the glans penis. The hemorrhage would stop shortly after the sexual excitement passed away.

Extreme difficulty was encountered in making a close inspection of the penis. The animal would not permit manual exploration, neither would he protrude the penis from the prepuce where it could be viewed, except for a very short interval before and after serving a cow. At such times inspection revealed an ulcer about one-half inch long, and three-eighths of an inch wide, located on the right side of the glans, near the free extremity.

The animal was retired from service and the prepuce irrigated daily with a mild, non-irritating, antiseptic solution. During the course of this treatment, several antiseptics were employed. Included in the list were chlorine, coal-tar and silver preparations. Each preparation was given a thorough trial. Those employed in solution in water were permitted to enter the prepuce by gravity, through a gum horse-catheter. After passing the catheter into the prepuce as far as possible, the preputial orifice was closed by means of the hand, and the antiseptic solution thus retained within the preputial cavity for a period of several minutes. Chlorine compounds in oil (dichloramine-T in chlorcosane 2.5%) were administered by means of a dose syringe.

Progress in the treatment was tested from time to time, by presenting a cow in estrum to the bull, but not permitting service, and noting the presence or absence of hemorrhage when the penis became erected. The antiseptic treatment, although employed throughout a period of several months, failed to improve the case, and it was decided to treat the ulcer directly with a cauterizing agent.

Great difficulty was encountered in securing the penis for the purpose of cauterizing the ulcer. It was impossible to secure the penis, and withdraw it from the prepuce with the bull in the

standing position. Casting the animal, by means of a side-line with hobbles on all four feet, also failed. This method of restraint might have proven successful if the animal had been placed under a general anesthetic, but the owner objected to this. While in the hobbles the bull fought tenaciously, but nevertheless it was possible to introduce the hand into the prepuce and grasp the penis. With an assistant working behind the animal, and pushing forward on the penis at the S-shaped curve, the penis was delivered within about one inch of the preputial orifice. At this stage, when it seemed the penis was about to be delivered, the animal would forcefully retract the organ into the deep recesses of the prepuce.

Following this unsuccessful attempt in securing the penis, three plans of procedure were considered: 1st, operating under complete chloroform anesthesia; 2nd, section of the retractor penis muscle under local anesthesia; 3rd, providing a window in the posterior part of the prepuce through which it would be possible to bring the penis to the outside. As the patient was an exceptionally valuable animal, the question of method of securing the penis was considered very carefully. The writer favored proceeding under general anesthesia, but after talking with the owner and his superintendent of cattle, plan number three was decided upon. As securing the animal with hobbles had not proven entirely satisfactory, an operating table was constructed. This proved to be a much better method of restraint.

Several weeks elapsed between the discontinuation of the antiseptic treatments and the cauterizing of the ulcer by electrocoagulation. During this period of absent treatment there was no improvement in the case. The bull was placed upon the operating table, and as previous attempts to withdraw the penis, with the animal securely tied upon the table, had failed, a vertical incision a short distance anterior to the rudimentary teats was made through the prepuce under local anesthesia, and a window thus provided. With the right hand and forearm introduced into the preputial cavity, entering through the preputial orifice, and an assistant pushing the penis forward at the S-shaped curve, the penis was secured and directed through the artificial opening in the prepuce.

After securing the penis in this fashion, no difficulty was encountered in holding the organ while the ulcer was being treated by electrocoagulation. The treatment was applied

after the method of Pfahler and as described by Da Costa,\* "consists in the destruction of all malignant disease by means of high frequency electric current either of the Oudin or d'Arsonval type of current. It differs from the destruction of disease by the thermocautery in that this heat is generated in the tissues due to the resistance to the flow of the electricity through the tissues, instead of destruction by transmitted heat such as applies to the use of the thermocautery. It has the advantage, therefore, over the thermocautery, of producing heat at a much greater depth, and in a more graded proportion. It applies the principal of the Percy cautery in producing a zone of tissue in which there is sufficient heat to destroy malignant cells but not normal tissue cells beyond the area of actual destruction of all tissues. In the area of coagulation all tissues are, of course, destroyed."

Examination of the ulcer at the time of operating revealed it to be oval in outline three-fourths of an inch long and about three-eighths of an inch wide. It was a dirty-gray color, and had penetrated into the urethra. The surrounding tissue appeared normal, there being no apparent general inflammation of the glans.

After cauterizing the ulcer, the penis was returned to the prepuce and the artificial opening closed by interrupted sutures. The suturing of the incision was unnecessary and probably not advisable. Better drainage would have been provided, if the wound had been permitted to heal by secondary intention. Healing was apparently prompt, and except for the formation of a small superficial abscess which necessitated early removal of the sutures, no difficulties were encountered.

Following the electrocoagulation the ulcer completely healed, and in about two months the bull returned to service. The animal has been in service for more than a year and at no time since the operation has hemorrhage occurred during the act of copulation.

The writer is greatly indebted to Dr. W. H. Kraemer, who suggested and applied the electrocoagulation treatment.

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The Epsilon Chapter of Alpha Psi Fraternity held its annual smoker for freshmen, in the School of Veterinary Medicine, University of Pennsylvania, the latter part of October.

\*Electrocoagulation in the Treatment of Malignant Disease, Da Costa, Modern Surgery, W. B. Saunders Co.

## CARRIERS OF BANG ABORTION BACILLI AND THE AGGLUTINATION TEST

By E. C. SCHROEDER and W. E. COTTON

*Experiment Station, U. S. Bureau of Animal Industry,  
Bethesda, Md.*

We have long believed, and our belief has been shared by others who have studied the subject, that it may be possible to distinguish, by means of the agglutination test for bovine infectious abortion, between reacting cattle that are and those that are not carriers of Bang abortion bacilli.

After having made many agglutination tests, followed by a careful search in the bodies of reacting animals for abortion bacilli, we have in no instance discovered a bovine animal which failed to react with the test in a higher dilution than 1 to 100 which we could prove to be a carrier of abortion bacilli.\*

In this connection the following study on the occurrence of abortion bacilli in the udders of reacting cows is interesting and instructive.

Milk was obtained from 56 reacting cows, all members of one large dairy herd in which bovine infectious abortion has existed for sometime. The milk from each quarter of the udder of each cow was drawn separately and injected separately into the abdominal cavities of two guinea pigs. In this manner, as some of the cows were producing milk with only three quarters of their udders, and as milk from some of the cows was obtained and tested on 2, 3 and 4 different days, the actual number of guinea pigs injected with milk from each cow varied from 6 to 32. The reason for keeping the milk of the different quarters of the udder separate, as it is well known that only one quarter of an infected cow's udder may harbor abortion bacilli, was to prevent the dilution of the milk from a possibly infected quarter with that from one, two or three uninfected quarters.

Among the 56 cows 30 reacted with the agglutination test in dilutions of 1 to 200 or higher, and 26 reacted with dilutions no higher than 1 to 100.

\*The terms we use in speaking of the agglutination test, such as a dilution of 1 to 100, or 1 to 200, mean, in each case, that the amount of blood serum added to a definite amount of a standard suspension of abortion bacilli compares with the amount of the suspension as the first or lower figure compares with the second or higher figure. Thus, in a 1-to-100 reaction one part of serum is sufficient to agglutinate the bacilli in 100 times its volume of suspension, and in a 1-to-200 reaction one part of serum is sufficient to agglutinate the bacilli in 200 times its volume of suspension. In our agglutination tests for bovine infectious abortion the total amount of fluid in each test tube is 2 cc.



Counting the milk obtained from the 3 or 4 quarters of any cow on any one day as a single sample, though the milk from each quarter was secured and handled separately, the total number of samples from the 26 low-reacting cows was 61, which were injected into the abdominal cavities of a number of guinea pigs of which 476 afterwards lived long enough for the lesions caused in guinea pigs by the Bang abortion bacillus to develop. On post-mortem examination not one of the 476 guinea pigs showed abortion bacillus lesions. The blood of some but not all of the guinea pigs was subjected to the agglutination test, and in no instance showed the least sign of a reaction.

Again, counting the milk obtained from the 3 or 4 quarters of any cow on any one day as one sample, though the milk from each quarter was secured and handled separately, the total number of samples from the 30 high-reacting cows was 49, which were injected into a number of guinea pigs of which 342 afterwards lived long enough for the lesions caused in guinea pigs by the Bang abortion bacillus to develop. The post-mortem examinations of the 342 guinea pigs supplied irrefutable evidence to prove that 25 of the 30 high-reacting cows, or  $83\frac{1}{3}\%$ , harbored abortion bacilli in their udders.

As the 56 cows from which the milk was obtained were all members of the same herd, we may assume that they had all been exposed to the same strains of the abortion bacillus. If the high-reacting cows had been members of other herds than the low-reacting, the absence of lesions in the guinea pigs injected with the milk from the latter would be open to the question whether the strains of abortion bacilli responsible for the low reactions were of a kind that lacked pathogenicity for guinea pigs.

While we are not ready to say definitely that a cow is not a carrier of abortion bacilli unless she reacts with the agglutination test in a dilution higher than 1 to 100, the fact that not one among 26 low-reacting cows was proved a carrier with tests which proved 25 among 30 cows, which reacted with dilutions of 1 to 200 or higher to be carriers, is quite impressive, particularly if it is noted that 12 more samples of milk from the smaller number of low-reacting cows were tested than from the high-reacting cows, and that the number of guinea pigs which served to test the milk from the low-reacting was 134 greater than the number which served to test the milk of the high-reacting cows.

To the presented data we could add many additional tests with milk from cows of a number of different herds, which showed

the frequent occurrence of abortion bacilli in the milk of high-reacting and their absence from that of low-reacting cows.

The determination of the maximum dilution in which the serum of a cow agglutinates a suspension of abortion bacilli requires, and there should be no variation from this, that at least two tests, with an interval of a month or more between, must be made. Unless the two tests are made, a beginning reaction may erroneously be recorded as a true low reaction. If the second or later test, in any instance, shows a stronger reaction than the first or earlier, it must be interpreted as signifying that the cow has recently become infected or has been reinfected, and that she is more likely to be dangerous than safe.

If the agglutination test for bovine infectious abortion is or can be made serviceable to distinguish with certainty between safe cows which, though they have been exposed to infection, and may have aborted, and may show some reaction, and dangerous carriers of abortion bacilli, it would tend greatly to reduce the difficulties that must be overcome in attempts to suppress the abortion evil through the use of sanitary measures.

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### MEAT AND MILK INSPECTION TO BE FEATURED

The Veterinary Division of the Michigan Agricultural College has arranged to conduct a Short Course for Veterinarians, at East Lansing, January 28 to February 1, 1924. Particular attention will be given to meat and milk inspection, poultry diseases and the diseases of breeding cattle. Dean Giltner will be assisted by the members of his faculty and a number of well-known experts, including Dr. H. H. Sparhawk, Chief Veterinarian, Detroit Department of Health; Dr. Wm. H. Price, Sanitarian, Detroit Creamery Company; and Dr. T. S. Rich, B. A. I. Inspector in-charge-of Tuberculosis Eradication Work in Michigan.

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### WESTERN PENNSYLVANIA VETERINARY CLUB

The Western Pennsylvania Veterinary Club held its regular meeting on November 31st, at Pittsburgh. Dr. C. J. Marshall, of the University of Pennsylvania, addressed the meeting on the subject of "Sterility." The Club voted to hold monthly meetings in the future.

## VETERINARY EXTENSION AT THE UNIVERSITY OF PENNSYLVANIA

Veterinary Extension was inaugurated at the University of Pennsylvania three years ago. Its primary purpose is to render to practising veterinarians a service similar to that rendered to farmers, live stock growers and dairymen by Agricultural Extension. This was adopted as the first objective because it was believed that agriculture and the live stock and dairy industries could be better served by furnishing information regarding advances in veterinary medicine to those men who had a basic training in that subject, than to attempt to give instruction along these lines to farmers, live stock owners and dairymen directly. At the same time, however, it was decided that no opportunity should be neglected to furnish information regarding sanitation and hygiene to those whose success and prosperity depend largely upon maintaining their animals in the highest state of efficiency.

Doctor George H. Hart, of the University of California, who was on a year's leave of absence from that institution, was selected to take charge of the work, with the title of Supervisor of Veterinary Extension, and devoted his entire time to the subject. One of his first acts was to establish the University of Pennsylvania Veterinary Extension Bulletin, which is published quarterly.

Dr. Hart next visited veterinarians throughout all parts of Pennsylvania to ascertain, if possible, their needs. He also attended the various meetings of veterinarians of Pennsylvania. Many valuable suggestions were obtained in this way. While making these visits, he got in touch with the principals of vocational schools and made arrangements to address the agricultural students on the subject of veterinary education.

These young men in this way obtained a correct and probably, in many instances, an entirely new viewpoint of veterinary medicine, which no doubt will react to the benefit of the profession and the live stock interests of the state.

The work done by Dr. Hart during the year was invaluable in establishing Veterinary Extension in Pennsylvania and it was greatly regretted that he could not be induced to continue the work.

Dr. G. A. Dick, Professor of Animal Industry, a member of the Veterinary Faculty, was then made Supervisor of Veterinary Extension. The appropriation for the following two years was reduced and it became necessary to alter the plans of carrying on this activity.

It was at first proposed to gather the veterinarians in groups at convenient and easily accessible points, and then give the lectures and demonstrations for which they expressed a desire. As the plans were developed, however, it was realized that the organization of veterinarians in local clubs in all parts of the State had already brought about the best grouping of practitioners that could be made. It was then thought best to conduct veterinary extension through these groups.

Each group was informed that any member of the Veterinary Faculty would respond to an invitation to address them on any subject he taught. This was to be done without any expense to the veterinarians. They responded with a great deal of enthusiasm, and members of the faculty have given lectures or demonstrations to these groups as often as they could arrange to get together.

After the work had been conducted in this manner for two years, with its popularity increasing during that time, the Dean of the Faculty, desiring to increase the efficiency of veterinary extension, conceived the idea of presenting well rounded courses of study which might be comparable to post-graduate courses. As a result, the following seven courses were outlined:

1. Diseases of the Alimentary Canal of Cattle.
2. Diseases of Swine.
3. Diseases of the Genital Tract of Cattle.
4. Diseases of Small Animals.
5. Diseases of Poultry.
6. Diseases of the Udder of Cattle.
7. Diseases of the Respiratory Tract of Cattle.

The following is an example of one of the courses as outlined:

*Subject:* Diseases of the Alimentary Tract of Cattle.

1. Anatomy—demonstrated on fresh, green viscera.
2. Physiology.
3. Pathology.
4. Peculiarities of Drug Action on Bovines. (Drugs acting on the alimentary canal).
5. Medicine. (Etiology, diagnosis and treatment).
6. Surgery.

7. Feeding.
8. Dairy Farm Sanitation.
9. Judging Dairy Cattle.

This plan is now being tried out in seven sections of the State, with as many groups of veterinarians. The plan was first submitted to each group for their approval and for suggestions. Each group had the privilege of selecting the course in which it was most interested. It was soon found, as was anticipated, that the needs of veterinarians varied in different parts of the state. The following list shows the course selected, and the number of groups selecting each course:

<i>Course</i>	<i>No. of Groups</i>
Diseases of the Alimentary Tract of Cattle.....	3
Diseases of Poultry.....	2
Diseases of Genital Tract of Cattle.....	1
Diseases of Swine.....	1

One member of the Faculty meets a group each month. The lectures are arranged in such a way that the work does not interfere with the regular duties of the teaching staff.

If this plan works out satisfactorily this year, it is hoped to extend it the coming year, so that every veterinarian in Pennsylvania can avail himself of the opportunity to obtain advanced work in veterinary medicine.

In the meantime the Veterinary Extension Bulletin is being published regularly and is mailed to each veterinarian in the State.

### BULLETIN ON FARM SANITATION

"Farm Sanitation" is the title of Extension Circular No. 138, issued by the Extension Service of the South Dakota State College, at Brookings. This is really a bulletin of forty pages, and was prepared by Dr. G. S. Weaver, Extension Specialist in Animal Diseases. The publication contains a great deal of valuable information in very convenient form, including excerpts from the regulations of the South Dakota State Live Stock Sanitary Board, relative to the disposition of carcasses of dead animals, requirements for the shipment of live stock, quarantines, etc.



## CLINICAL AND CASE REPORTS

(Practitioners and others are invited to contribute to this department reports of unusual and interesting cases which may be helpful to others in the profession.)

### DICEPHALUS BISPINALIS TRICHIRUS

By KNOWLTON REDFIELD, *Brookings, S. D.*

*Animal Health Laboratory, South Dakota State College.*

The above monstrosity was brought to the Animal Health Laboratory of South Dakota State College, May 5, 1923, by the owner, who gave the following history of the case. The animal was out of a Duroc-Jersey sow and by a boar of the same breed. It was the fourth in a litter of seven pigs, appearing as a posterior presentation, dorso-sacral position. The heads apparently became lodged under the brim of the pelvis, as only the rear pedal extremities could be seen and delivery was finally affected by the owner, only after considerable traction had been applied. The animal was delivered dead, the pigs both preceding and following it all being normal and alive. The sow's history was negative, though the boar was the sire of another litter on the same farm, one of which was also a monster, having, as the owner expressed it,—“no face, but a trunk like that of an elephant”. Unfortunately we did not get a chance to examine the latter monster as the owner had “thrown it to the dog” that morning.

#### HISTORY OF MONSTROSITIES

Space prevents of any but a very brief consideration of such monstrosities. Suffice it to say, aside from the superstitious ideas concerning this formation, which are unworthy of note, that Regis started the hypothesis that the germs of these monstrosities must have been originally produced with those of normal beings and that they were developed in the ordinary course of generation. This or a similar hypothesis was accepted by Winslow, Duvernoy, Haller, and others up to the time of Meckel. Geoffroy Saint-Hilaire, however, successfully combatted it and demonstrated that these anomalies in organization are not primary, but accidental; that had they been placed in ordinary circumstances, would have developed normally, but had only become anomalous because their development was disturbed.

The opinion at present prevailing with respect to these malformations is to the effect that the embryo or fetus has been subjected to some kind of alteration *in utero* and that this has been produced during the interval between conception and birth.

DeLee, Mall and Ballontine refer to the effect of external agencies on the formation of monstrosities. Among such influences they cite injury to the abdomen or uterus, diseases of the uterus, chorion (Mall), and amnion. Abnormal implantation of the ovum as in the tube (Mall), arrest of development and changes in the ovum during the blastula or morula stages, the result of thermic, chemical or physical action. It has been proved that lithium, sodium, potassium and magnesium have a special selective action on various cells of the morula, producing char-

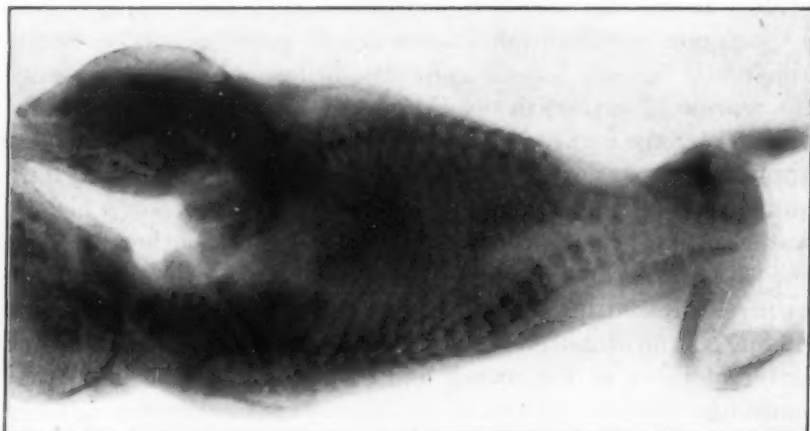


Fig. 1. X-Ray Plate of Case

acteristic monsters. Some of the poisons affect the nervous system and others the heart. It is well known that shocks and deprivation may produce vascular and nutritional disturbances, general and local in the endometrium, which may seriously affect the growth of the ovum.

Among the internal causes may be mentioned: heredity, defective spermatozoa, etc.

#### ANATOMICAL DESCRIPTION OF MONSTROSITY

The animal has a double head and neck. Heads are normal with the exception of the left branchial cleft of the left head, which failed to close, forming a typical cleft palate. The necks are normal and join just anterior to the thorax. There are three anterior limbs, fully developed, one of which is situated more or

less on the dorsal surface of the thorax. This limb appears to have started as two individual appendages but which fused very early in fetal life.

As can be seen from the accompanying X-ray plate, the left half is slightly turned medially upon its fellow. The ribs, of which there are fifteen pairs in each half, a total of thirty pairs, can be seen to interlace to some extent. The cervical, thoracic and lumbar, as well as the first two sacral vertebrae are separate and distinct in each half of the individual. There is but one third and one fourth sacral vertebra. Posterior to this the coccygeal vertebrae are again double, the latter forming two distinct and individual tails.

The posterior limbs are normal as to both number and anatomical formation. There is but one rectum and one female genital opening. As stated previously there are two mammary systems and one umbilicus.

#### PHYSIOLOGICAL DESCRIPTION OF MONSTROSITY

As can be seen from the X-ray plate, there is a shadow of but one heart.

Due to constriction of the tissues, I was unable to inject barium per os into this animal. This was, therefore, injected per rectum with a syringe and female (human) catheter to determine by subsequent X-ray whether there was more than one stomach or intestinal tract, and if this were so to determine at just what place anterior to the rectum they join. This was done successfully and as can be seen from "barium" X-ray plate there is but one stomach and one intestinal tract.

It is to be regretted that more monstrosities are not reported as there is much that can be learned from them from an anatomical, physiological and embryological standpoint.

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#### TEST THE CALVES

Numerous cases have been reported indicating that tuberculosis frequently exists in very young calves. This being the case it is very important not to overlook the testing of calves in tuberculosis control or eradication work. The intradermic test is the test of choice for young calves. Regulation 7 of the Bureau of Animal Industry requires that all calves intended for interstate shipment, regardless of age, must be tested and accompanied by an interstate health certificate and tuberculin test chart.

## REVIEWS

LIVESTOCK SANITATION. W. H. Dalrymple, M. R. C. V. S.,  
Department of Veterinary Hygiene, Louisiana State University. 145 pages, with 23 full-page, half-tone illustrations.  
The Gladney Press, Baton Rouge, 1923. Price \$2.00.

In this little book the author has gathered together a number of short popular articles, which, with a few exceptions, have appeared as weekly contributions to the *University Press Bulletin*. In no sense technical, the material has been prepared for the benefit of stockowners, and to these people, with whom he has been associated for over thirty years in Louisiana, Dr. Dalrymple has dedicated this unpretentious volume.

The book is divided into nine sections, dealing respectively with (I) Food, (II) Water, (III) Air and Ventilation, (IV) Soil, (V) Disposal of Animal Excreta, (VI) Disinfection, (VII) Microbic and Parasitic Diseases, (VIII) Mistreatment of Livestock, and (IX) Miscellaneous.

Whenever a veterinarian attempts to write a book, intended primarily for the lay reader, he enters upon a difficult task. However, the author's long experience in this particular field has made the task easy, and we do not hesitate to pronounce the book "safe." We hope that it will have a wide distribution.

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LES MALADIES DU MOUTON (Diseases of Sheep). By Prof. G. Moussu, l'École Vétérinaire d'Alfort. 332 pages, with 114 figures and 8 colored plates. Vigot Frères, Paris, 1923. Price 20 francs.

The fact that sheep-raising is suffering a marked decline in France was undoubtedly a very important reason for the preparation of this book. In the foreword the author gives statistics, showing that the ovine population in France has fallen off to less than ten million head, from over twice this number in 1898 and from over thrice the present number in 1875.

Diseases of lambs are discussed in the first part of the book, some fifty pages being devoted to these ailments, divided into three groups: the first comprising diseases of microbic origin; the second, those of digestive origin or of undetermined cause; the third, those of parasitic origin.

The balance of the book is devoted to the diseases of adult sheep. These are taken up and discussed in a systematic order. Seventeen pages are devoted to various methods of castration. The author appears to have covered the subject of sheep dis-

eases very thoroughly, and the book undoubtedly merits a very cordial reception upon the part of practitioners wherever sheep are raised.

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### ABSTRACT

SPEZIFISCHE INFEKTIÖSE PNEUMONIE BEIM FOHLEN. EIN NEUER EITERERREGER BEIM PFERDE. (Specific Infectious Pneumonia of Foals. A New Pyogen in the Horse). Hilding Magnusson. Arch. f. Wiss. u. Pract. Tier. 50 (1923), 22-38.

The author describes a new disease of colts occurring in Sweden. Literature is quoted to show that the disease may have been observed previously in Hungary (Schmiedehofer) and in Denmark (Adersen.) Twelve field and several experimental cases are described. Several illustrations are presented. Experimental inoculations were made with organisms isolated from the various cases in order to determine the cause of the disease. From these experiments it appears that a diphtheroid forming a yellowish-red pigment is the causative factor. The name, *Corynebacterium equi*, is proposed for this organism. This bacterium is pathogenic for foals and swine only. Its morphological, cultural and biochemical characteristics are described.

The nature of the disease is characterized by subacute or chronic broncho-pneumonia, with circumscribed abscess formations in the parenchyma of the lungs. In one case the organism was not found in the lungs but it was shown to have caused pleurisy, peritonitis and orchitis. In one case the organism was found in the joints, where it was associated with streptococci. The symptoms are: Increased and difficult respiration with abdominal breathing, occasional rattling sounds, in some cases coughing, discharge from the eyes, brownish purulent discharge from the nostrils, rapid emaciation, rough coat, temperature quite normal until later stages of disease and pulse not much affected. In the living subject the diagnosis is based on difficult abdominal breathing, discharge from eyes and nose, absence of fever and occasional demonstration of the causative organism in the discharge from the nose. No positive agglutinations were obtained. On post-mortem examination the disease is easily diagnosed by finding the thin-walled, cold abscesses in the lungs and also enlarged bronchial lymph-glands infiltrated with pus. The treatment has been symptomatic in all cases and without success.

H. J. S.



## AMERICAN VETERINARY MEDICAL ASSOCIATION

Proceedings of Sixtieth Annual Meeting, Montreal,  
Canada. August 27 to 31, 1923.

*(Continued from p. 363, December Journal)*

PRESIDENT WELCH: At this time, I am going to extend the privilege of the floor to a member of the Ladies' Auxiliary, who wishes to bring a very important matter before us. Mrs. Hoskins.

. . . The men arose and applauded. . . .

MRS. HOSKINS: Mr. President and Gentlemen of the American Veterinary Medical Association: I am not coming on a suffrage question at all, but there are many of the ladies who have found that the wives and mothers and daughters and sisters of the veterinarians have not fully understood what the Auxiliary is and what is its purpose, and we have asked the privilege of about five minutes of your time and attention to let you know just exactly what we are trying to do.

The organization is one which devotes its funds to the benefit of senior students in veterinary colleges in the United States and Canada, who wish a little assistance.

Our first loan was made last year. The rules and regulations which govern these loans are rather simple: A sum not to exceed \$350 can be loaned to any senior student each year. This student is to repay this loan, half of it two years from the date of issue; half of it three years from the date of issue, with four per cent interest. The student must be recommended by the dean of his college. He must furnish two guarantors that this sum will be repaid; his application must be signed by the President of the Auxiliary, the Secretary of the Auxiliary, the Chairman of your Executive Board, and the Chairman of your Committee on Intelligence and Education. We are guarding our funds, you see.

The funds are secured only through the dues paid by the members of the Auxiliary. Any lady, mother, sister or wife of a member of the American Veterinary Medical Association, is eligible to membership. The initiation fee is fifty cents. The annual dues are one dollar. The dues, as I say, are the only source of income. Last year we loaned \$450, \$350 to one student, and \$100 to another.

I am going to tell you about that \$100. It may give you a little better idea of what we are trying to do. In January we

had a letter from this young man, stating he had one more semester's work to finish his course. His father had met with sudden financial reverses, and he couldn't finish his course unless he had assistance.

His dean said, "Apply to the ladies." He sent his application to us. We rushed it through and the day before registration \$100 was in his hands, and he is now finishing his course.

We had a most grateful note saying that our quick response to his request had given him the opportunity to go on and finish with his class.

Will you gentlemen take the message home to the ladies of your families? Those of you who have wives and daughters with you probably have them in our Auxiliary meeting this afternoon, although there must be a number who did not get there. Will those of you whose wives are not members, carry the message to them?

We will try to have in the JOURNAL, in an early number, a written statement of the purpose, the dues and so forth, of our Auxiliary, so that you may have it in writing to present to your wives, but will you take the idea home to them? We might, I suppose, write to each one, but we don't know how many of you have wives. We have no means of knowing that. (Laughter). So we are making the appeal general and we hope you will take the message home to your wives and help us.

We have an application in now, and unless we have a number of dues paid, a number of new members, we cannot make the loan.

Will you help us? Thank you. (Applause).

The men arose and applauded.

PRESIDENT WELCH: The report of the Committee on the American Research Council. Is Dr. Goss present?

Dr. Goss read the report.

PRESIDENT WELCH: What shall be done with this report?

It was voted, on motion of Dr. Murphey, duly seconded, that the report be adopted. (To be published.)

Secretary Hoskins then read a letter received from Dr. W. H. Wray, written from Beaconsfield, England, dated August 16.

PRESIDENT WELCH: Gentlemen, it is always the unexpected that happens. Scarcely was the ink dry upon his message ere he was summoned on his long journey.

Dr. Gibson then sang a song in memory of Dr. Wray.

Dr. Baker then read the report of the Committee on Necrology.

It was voted, on motion of Dr. Baker, duly seconded, that the report be adopted. (To be published.)

DR. C. D. MCGILVRAY: Mr. President and Fellow Members of the American Veterinary Medical Association: It seems appropriate, on an occasion of this kind, that some fitting reference be made to John Runyon Rutherford. We in Canada feel that through his death we have lost one of our greatest leaders, and I have been asked to prepare an obituary that might be published, dealing with his career, and making such references as we as a body might see fit to pass as a slight remembrance of that once member of this Association.

Dr. McGilvray read his prepared obituary.

Song by Miss Featherstone.

PRESIDENT WELCH: Gentlemen, the tellers have reported on the election of the vice-presidents. I will read the result. The five following members, Dr. Daubigny, Dr. Kingman, Dr. Hart, Captain Kelser, and Dr. Moore, having received a majority of the votes cast, I will declare elected to serve as Vice-Presidents during the following year.

Dr. Baker has some announcements.

DR. BAKER: I just desire one moment of your time to express to you the regret that Dr. MacEachran feels that he has not been able to be present with you at this gathering, and also the regret that he wasn't able to carry out the promises he made when he asked, in St. Louis, that as many as could spend a day at his country place. The Doctor is in a very serious state of health, and, in consequence, is not in a condition to receive any one at his residence, or come here. I assure you that Dr. MacEachran takes a very keen interest in the affairs of the American Veterinary Medical Association, and if it had been at all possible, he would have been here.

PRESIDENT WELCH: I will now call for the report of the Committee on the International Veterinary Congress.

DR. MERILLAT: Mr. President, Gentlemen: It was at my suggestion some years ago that this Committee was appointed. It seemed at that time, in 1919, that the international situation might warrant the invitation of the veterinarians of the world to reconvene a great international veterinary congress.

Since that time this Committee has been in communication with those who have to do with the reconstruction of this broken wheel in Europe. Thus far, no progress has been made, and, in view of the poor prospects of anticipating a reunion of the world

veterinarians in the United States during the next few years, I would move that this Committee be discontinued.

PRESIDENT WELCH: You have heard the motion, gentlemen. Is there a second?

The motion was seconded by Dr. Hershheim, and carried.

PRESIDENT WELCH: The report of the Committee on Legislation.

Dr. Ferneyhough read his report.

DR. FERNEYHOUGH: I do wish to say to you gentlemen that, as a member of your Legislative Committee and the present Chairman, it is all-important, when we go to Washington, to be thoroughly supported by the people back home.

Now, I want to call your attention to one thing: It is one thing to offer a bill to a legislative body; it is another thing to get the bill passed in the form you offer it. Sometimes you don't recognize your own child, and you have to be very careful after offering a bill, to see that it is not so amended as to defeat the object for which it is drawn. That is one thing we have to be careful about. (Applause.)

It was voted, on motion of Dr. A. H. Baker, duly seconded, that the report of the Legislative Committee be received. (To be published.)

DR. A. H. BAKER: Following the report made by Dr. M. C. Baker, on the illness of Dr. MacEachran, I would like to move that the Secretary be instructed to write Dr. MacEachran a letter, expressing the sympathy of this Association in his illness and a sincere wish for his recovery.

The motion was seconded by Dr. Hershheim and unanimously carried.

DR. EICHORN: I move that a telegram and letter be sent to Dr. Dalrymple, in Louisiana, who also is ill.

The motion was seconded by Dr. Baker, and unanimously carried.

PRESIDENT WELCH: Gentlemen, yesterday we passed over a report from the Committee on Revision of the Constitution and By-laws. Dr. McLeod, Chairman, will present the report.

Dr. McLeod read the report of the Committee.

#### REPORT OF COMMITTEE ON REVISION OF CONSTITUTION AND BY-LAWS

Your committee, to whom was referred the revised constitution and by-laws, as submitted by a former special committee, and adopted at the St. Louis meeting in 1922, respectfully reports that on call of Chairman John R.

Mohler, the first committee meeting was held August 31, 1922, at the Live Stock Exchange Building, East St. Louis.

In addition to the transaction of other routine business, it was moved and seconded that copies of the revised constitution and by-laws be forwarded to the President, Vice-Presidents, and to each member of the Executive Board. Motion carried, and committee adjourned.

*Committee*

J. R. MOHLER, Chairman  
C. A. CARY  
L. A. MERILLAT  
A. T. KINSLEY  
J. H. MCLEOD

During the interim following the St. Louis meeting, Dr. Mohler resigned; President Welch appointed Dr. McLeod as Chairman and Dr. Wm. Bell, of Nashville, Tenn., to fill the vacancy on the committee.

The second meeting of this Special Committee was held in the La Salle Hotel, Chicago, on the 5th day of December, 1922, all members present except Dr. Merillat. Meeting called to order by the Chairman, and Dr. A. T. Kinsley was chosen Secretary.

At 2:30 p. m. the first joint session with the Executive Board was called to order, Chairman Way presiding, the second joint session being held December 6, at 5:30 p. m.

The results of the above joint sessions of the Executive Committee and the Revision Committee were published in the March issue of our official JOURNAL. We recommend that the proposed revision be discussed, and, if satisfactory, adopted.

(Signed)

J. H. MCLEOD  
C. A. CARY  
L. A. MERILLAT  
A. T. KINSLEY  
WM. M. BELL

PRESIDENT WELCH: What shall be done with this report?  
A motion to adopt the same will be in order.

DR. CARY: I move the report be adopted.

The motion was seconded by Dr. Kinsley.

PRESIDENT WELCH: Moved and seconded that this report be adopted. Any remarks?

The motion was carried.

PRESIDENT WELCH: What is your further pleasure, gentlemen?

DR. GIBSON: I rise to a point of privilege, first to express my pleasure at the prospect that you are coming to Des Moines next year; then to mention two or three things that we have overlooked in connection with that meeting, which we hope will be the best meeting this Association has ever had. First, splendid hotel accommodations, and get this: Hotel prices are regulated by law in the State of Iowa, and cannot be jimmied up at the time of a convention. We will not be abused in any hotel in Iowa where you attend a convention. When the gavel falls at final adjournment of this Association's meeting in Des Moines next year, the gates of the great Iowa State Fair will swing open, and your badge or button will admit you there, and you will have the privilege and pleasure of seeing the



greatest exhibit of breeding live stock that is held anywhere on earth. That is another inducement to come.

Another thing: Back of our meeting will be the organized Bureau of Conventions of Des Moines, represented by Mr. George E. Hamilton, who is spending the week here to study this Association to know what they do and what they would like to do, and what they want to do, and they have everything arranged in Des Moines so you can do just these things.

Then we want the ladies. I am pleased to see the high percentage of ladies here at this meeting. We want a higher percentage of the ladies in Des Moines. We have in Des Moines a Women's Building that is one of the best in America. That will be at the services of the ladies, as well as all other conveniences.

I wanted to say something for Des Moines, but was pleased that it wasn't necessary. However, I say to you: Come, gentlemen, and everything will be ready. (Applause.)

PRESIDENT WELCH: Shall we proceed to the consideration of the revision of the Constitution and By-laws?

DR. McLEOD: I would like to move that the President-Elect appoint a new committee to take this matter up and go on with it, and report at the next meeting in Des Moines.

. . . The motion was seconded by Dr. Bell. . . .

DR. MERILLAT: I am not so sure I understand what we have done. Have we revised the Constitution or not?

PRESIDENT WELCH: We have not.

DR. MERILLAT: Then I second the motion.

DR. KINSLEY: I rise to a point of order.

Will the adopting of this revision report carry with it the revision that appeared in the March issue of the JOURNAL? Was that not adopted? If it was, why have we not revised the Constitution?

DR. MERILLAT: I move that report be re-read.

. . . The motion was seconded by Dr. Cary, and carried . . .

. . . The report was re-read . . .

DR. KINSLEY: I rise to a question of information. Was this not adopted?

PRESIDENT WELCH: It was adopted.

DR. KINSLEY: Does not that adopt this revision of the Constitution that was published in the JOURNAL?

PRESIDENT WELCH: I think not.

DR. McLEOD: I think not.

SECRETARY HOSKINS: You have adopted a resolution or a recommendation to discuss the proposed revision, and if you think it satisfactory to adopt it.

DR. MERILLAT: Right now.

DR. KINSLEY: If it was adopted, it was not discussed. The motion was made and not discussed; therefore this is adopted.

PRESIDENT WELCH: We have adopted the report.

DR. KINSLEY: If you have adopted the report, you have accepted it, and that carries with it this revision.

DR. MERILLAT: If the members who are interested in this reorganization would trouble to read the October issue of the JOURNAL of the Association, they will find there is a paragraph therein which expresses explicitly that this shall be a notice to this Association that a certain revision of the Constitution, presented at St. Louis, will be voted on at this meeting, which is this moment, and it has been done, so the revision of the Constitution as laid down by the Executive Board in Chicago is in operation today, and it should prevail right now.

PRESIDENT WELCH: You have asked that we discuss the revision of the Constitution as published in the March issue of the JOURNAL, and, if satisfactory, adopt the same. My ruling would be that you have adopted the report, and placed the matter in proper shape for a discussion of the revision of the Constitution.

DR. HIGGINS: Does that report say, adopt the Constitution?

DR. CARY: Mr. President, when I made a motion to adopt that, that brought this before this Association to discuss. It should have been opened for discussion. There was no discussion asked for. Does that say the adoption doesn't carry with it the adoption of that report in full as printed, and everything?

SECRETARY HOSKINS: I wish to speak simply as a plain, ordinary member of the Association. I voted in the affirmative when the question was put for the adoption of this report. In so doing, I did not believe that I was voting to adopt any revisions of the Constitution. But I did believe that I was voting to accept this report, and that immediately following the adoption of this report the matter would be opened for discussion.

DR. MERILLAT: Mr. Chairman, I move a reconsideration of this problem.

. . . The motion was seconded by Dr. Udall, and carried . . .

DR. A. H. BAKER: I move the report be received, and then we can proceed to further business afterwards.

. . . The motion was seconded and carried . . .

DR. CARY: I move that the amendments, changes, revisions, be read and discussed for adoption.

What I call for is the report that was in the March issue.

SECRETARY HOSKINS: I believe it would be well to read the present clause in the constitution and the corresponding proposed revision. Does that meet with your approval? Do you want me to read the proposed revision, without knowing what you are revising?

. . . Secretary Hoskins read Section 1, Article V, as it is at present, and also the revision . . .

DR. CARY: I suggest he read all of this before we take it up seriatim, so we will understand the connection.

. . . Dr. Hoskins read the present sections, and also the revisions . . .

DR. UDALL: Mr. President, while it is true that this report concerning the revision of the Constitution and By-laws has been printed, and all of us have had ample opportunity for study and comparison, I think it is true that very few members of the Association, and very few members who are here, have a very clear knowledge of what all this implies. I am certain I do not, and I have listened carefully to what has been said.

We have an administrative organization that seems to be operating smoothly. I have not heard of any serious injustice that has resulted from our present administration. I believe that we should proceed slowly along the question of changing or revising the Constitution and By-laws. Our present administrative board is the result of years of experience. The machine has not been in use very long, and whether this proposed revision as read proposes to give us a new machine or change the wheels, or what not, I don't know, and I don't believe anybody else does.

I move, therefore, that this be reported to the Executive Board in order that they may give it their attention (they are the administrative office of this Association), and that it be subject to their disposal. If they see fit to report back to us, explaining what it means at the proper time, all right. That is the proposition, the motion that it be referred to the Executive Board.

DR. CARY: Mr. Chairman, this revision has been acted upon by the Executive Board in meeting with this Committee. It is required by the motion or resolution, whatever you call it, that established this Committee on Revision. They were present in Chicago when this was acted upon.

Now, you want to refer it back to them. What has been the experience in the revision of the Constitution and By-laws of this Association? I have been up against it. This is the third one I have had to do with, and if there ever was any Association that dilly-dallied along, it was the last one. There were six or eight different constitutions written out and some of them printed, that came before the Committee of which I was Chairman and which revised the Constitution and made the present one. Every year the story came up, just as Dr. Udall said a little while ago, nobody knew anything about it.

Now, I am not here to demand that this be passed; I am not here as a stickler for this or anything else, but there came up a demand for more recognition of the rank and file in this organization and especially on the Executive Board. They didn't call for just a double number of the Executive Committee; they called for a House of Delegates, with two members, at least, from each state that is represented in the American Veterinary Medical Association. When this Committee took this matter up, they found that was impossible, because some states have two veterinary medical associations and some states have none.

Now, in order to compromise this matter, in order to give these members of the Association, who are practitioners out in the field, who never attend our meetings, a say in this, we brought up the same thing as was brought up in the revision in Detroit, to give them a voice in the vote for the officers. It is in there. We kept it out at Detroit, because we didn't know what we could do.

There is a call for this from the rank and file. Last year we had four hundred members dropped; this year we got one hundred and seventy-five, some of them from Egypt. You heard about that yesterday. I don't care about that. The rank and file want more voice in the organization of this Association. I am one who wants to help, and I am going to do it.

I want to say to you, you can vote this down today; you can do a lot of things you want to, but in the end you will do this or something more, or you will let loose of the rank and file of this organization. This has nothing dangerous. I know

as much about the constitution and by-laws of this organization as any man, because I helped make it, and I will stand on this, that it won't hurt the Association and will get more men on the Executive Board, give the Association more voice than six or seven men who are elected, and won't dictate.

You say these complaints are unjust. I don't care whether they are just or unjust. They are here, and the rank and file are complaining about it. I never was a man in any organization who was afraid of the rank or file in that organization, or the people. Whenever an officer gets that way, it is dangerous. I have been an officer in my state for over thirty years.

Now, gentlemen, this has in it, as the Secretary knows, lots of things that will help him. It has some things in it that may scare you in a sense, in a way. Why, to increase the Executive Board seven more members, just doubling it, from the rank and file, from the vice-presidents, and give these vice-presidents something to do except carry the honorary membership of the Association—it gives them something to do, puts them on the Executive Board. The president has no power. His power has been shorn. I know; I have been through that. This is a sort of compromise of the extreme demand made by some of these men in the West and Central States, that a big organization like the American Veterinary Medical Association have a House of Delegates. If we adopted that system, we would have over a hundred on the Executive Board. We are not big enough for that. We haven't money enough, but we do have money enough for doubling this.

Now, I don't care; I have no axe to grind. I don't want anything at the hands of this Association, but for the good of the Association. This stands for it. It is a step in the right direction. It will stand correction in a few years.

Do you know wherein Great Britain stands much over the United States in many things? It has no constitution. Great Britain has what? An organization that whenever they want to live up to the times they have nothing staring them in the face like a fixed constitution. Our constitution stands up against us every once in a while, and we are prevented from doing what we want to do.

I am not criticizing. God knows, I owe all I have to the United States, but here we have to grow a little. We have an expansion in this. This is a thing along the right lines, and



somewhat along the lines that were asked for, but not so extreme.

There are some things that may not work out. We can correct them, just as we did in Detroit. What did they do the year following Detroit? They were changing the constitution and by-laws without submitting a written paper. I had to kick on it. Lots of it was good, and proved good for the organization. Now, we stand and ask for something that will make the machinery work better for the Secretary, for all concerned, and a lot of us say we don't want it because we don't understand it.

How is the legislature taken care of at Washington? Is it done on the floor? Who does it? Committees. Most of the bills acted on in the House of Representatives and Senate are acted upon by committees. We want to get a little more liberal. We want to trust our committees some more. We want to act more along the lines of getting progressive, acting along the lines of the good of the rank and file, of the majority.

Some one said, "You are giving them the right to vote; they won't vote."

That is true. I have seen men both North and South in the great United States that have lived for years and never voted in the great free republic of the United States. You can't make a man vote. You can't get a hundred per cent vote anywhere, unless you go out and drag them in. There is no criticism on them in that respect. Now, gentlemen, you can vote this down, you can hash it up and down as I have seen it done time and again. I want to promise you you will make no more progress than you are making now in the adoption of this thing as it stands. If you want to go farther two or three years later, go farther. Here is improvement. It gives representation, and it gives the rank and file a right to vote for the President. The election of President is a year in advance, and gets him ready for the office. I know about nine out of ten presidents elected here suddenly on this floor don't know what they are up against until they are ready to give the gavel over to some one else.

What does the American Medical Association do? They do that. Is this what you may call dangerous, radical legislation? It is not; it is for the good of this Association, and I hope we have the good wise judgment to adopt it as a step in the right direction.

DR. MERILLAT: I second Dr. Udall's motion.

DR. KINSLEY: I move this matter be laid on the table.

PRESIDENT WELCH: Moved and seconded that this report be referred back to the Executive Board. Any remarks?

DR. CARY: Mr. Chairman, I rise to a point of order. A motion to lay on the table takes precedence.

DR. KINSLEY: I move this matter be laid on the table.

DR. CARY: I second the motion.

PRESIDENT WELCH: Gentlemen, a motion to lay this matter on the table has been made and seconded. Those in favor signify by saying "aye;" opposed, "no." The motion is lost.

DR. MERILLAT: Now, gentlemen, you have heard Dr. Cary tell you about a remarkable system of running an association. It is the history of national associations in the United States that those who vote by postal card, by proxy, are destroyed and do not permanently exist, because it is the least democratic organization that ever was created, and is not representative as the letter of the provisions states. The Committee on Revision was appointed with the object of studying the possibility of making the American Veterinary Medical Association a delegate association. That was the spirit of the influence that created this committee, to make the American Veterinary Medical Association a federation of state associations.

It made a report at St. Louis with this as one of its recommendations, that the governing body of the American Veterinary Medical Association shall be constituted of delegates from the various state associations.

Now, gentlemen, I do not know, neither does Dr. Cary know, whether this is wise or unwise, but what I want the American Veterinary Medical Association to do is to give the members the privilege of studying whether or not this is feasible. I am firmly convinced that if the American Veterinary Medical Association elects its president by mail ballot, it will be less representative than it is today, for the reason that, as Dr. Cary has confessed, few people vote, and so many vote who are not acquainted with the issues, and do not, therefore, vote intelligently and do not express the wishes of the Association.

That is why I believe that this problem, which is a great problem, should be sent back to the Executive Board for discussion. I do not believe it would be wise for the American Veterinary Medical Association to make a revolutionary change in its constitution, but I do believe that it is one of our duties to study, during the next few years, the possibility and the advisability of this becoming a federation of all of the associations of

the United States. It is not necessary to do it now, not necessary to do it next year or the next, but let this be an open question before the American Veterinary Medical Association for some time to come, so when we do take the step, we will know it is wise. Let those who have had to do with the state associations analyze it and read it, and be ready to take it over.

So this radical revision which extends this abomination of a system of mail voting over all the officers, I do not think should prevail. In fact, since I have been a member of this Committee I have believed that all of the ills of this association, all of the trouble, if there is any (I believe he has magnified it), coming out of the rank and file, as we say, comes from the fact that we already elect six members of the Executive Board by postal card ballot; that if these same men who complain were able to come to a meeting and feel that they had a voice in the election of some of the executive officers of that body, they would be more inclined to come to a meeting. There would be an inducement to come to a meeting if they had some voice in its work. Now, you are going to close the membership.

Those who come to the meeting year after year, will have no voice in the affairs of the Association, except to nominate a President, and go home after a while, and then sign a postal card ballot.

Gentlemen, I believe the whole trouble is that the people who come to the meetings, come here and listen to papers; they feel they haven't any power. If you would change this proposition so that the five vice-presidents who are elected on the floor are actually members of the Board, the members would feel they have some little execution in the administrative affairs of the Association.

This thought prevailed in my mind ever since I have been a member of this Committee, but I am sorry to say I have been turned down at every turn on that belief.

It is my idea, instead of electing five figurehead vice-presidents, who have nothing to do except have their names on the programs, have those men come here and serve as members of the Executive Board. Then the whole membership would feel it is worth while to go to an Association meeting because they have something to say. If you deprive your members from having anything to say in the Association meetings, your attendance will get smaller. You may remember when we went miles and miles for no other purpose than to elect a secretary or president. Now, are you

going to take away the power we have at the meetings to elect these officers, and leave it to a postal card vote.

Here is something else to think of. A man might have an inclination to send around a postal card to his friends and get twenty or thirty votes. A man who is president of a veterinary society, a good salesman, may go around and say, "Vote for me," and he can get the necessary ten or fifteen votes to put him in.

Those out in the field, who are taking no particular interest in the affairs, don't vote at all. If they do vote, they don't know whom or what they are voting for. So I hope Dr. Udall's motion to refer this back to the Executive Board, so that we all can study this problem seriously with the hope of making some sane revision in the future, prevails.

DR. KINSLEY: I just want to express my views of why I don't want this to go back to the Executive Board, and why I want it to lay on the table.

Gentlemen, this Association has given me all I can ask for. I have nothing in mind except that if it is referred back to the Executive Board it dies. My idea in laying it on the table is that the Chairman of the Committee can bring in another report a year hence. If you refer it to the Executive Board, that is the end.

I am not appealing to you to adopt this, but I am appealing to you to kill this motion, and let us present another proposition for consideration here at the next annual meeting. Do not refer it to the Executive Board.

SECRETARY HOSKINS: I would like some information. I would like to know whether it would not be possible to do one thing with some of these recommendations and possibly something else with the rest of them.

DR. KINSLEY: You cannot.

DR. CARY: Yes, it would. This Association has power to adopt any one of those sections recommended and reject any.

SECRETARY HOSKINS: The reason I asked that question is because several of those proposed amendments are my particular pets, and I am interested in seeing them put on the books in the quickest manner possible.

DR. CARY: There isn't any question but what we can take up this proposition seriatim and adopt any section or part of it, and amend it.

DR. UDALL: I do not want to occupy the time of this meeting, and I don't want to pass any judgment on these proposed revi-

sions, but I would submit as evidence of the wisdom of returning it to our Executive Board, the conflict of opinion that has already arisen as to how we can handle it. We have duly selected an administrative body and an Executive Board, and purely as a business proposition, I submit that it is good policy and wisdom to find out what they think of it before we act on it.

This came from the floor. The idea that we can't get it back from the Executive Board is nonsense. If we can't get anything back from them, we had better abolish the Board. As long as we have a machine and administrative officers for doing such things, I would like to know what they think of it. The fact that they sat with the Committee and the Committee brought in a report doesn't mean we have any report from them.

DR. CARY: The Executive Board acted in passing this.

DR. UDALL: I am not questioning the merits or demerits of this revision. Perhaps they have approved it, but let them say so.

DR. McLEOD: Some short time ago, most of the members present are aware, in St. Louis, a special committee was appointed to revise the constitution, so that the practitioner in the West could get the recognition he deserved, and this Association could be made a more democratic association. That committee took up this work.

The committee was composed of Dr. Merillat, Dr. Cotton and myself. We submitted a constitution at the St. Louis meeting. That constitution, after being submitted, was not read at the meeting, but it was intended that it be published in the JOURNAL so as to save time. That old constitution submitted by the old committee at St. Louis is there on the table, and I believe that constitution, that this Association spent money and time on, should be read before this Association. That old committee report is a good constitution, and it is built along the lines to create a more democratic organization.

I believe, before we adjourn, this whole report of the committee should be read, as the report called for at this meeting, so it can be considered at the following meeting in Des Moines.

DR. CARY: This constitution and by-laws was considered by both committees to a certain extent, and it was decided they couldn't report that, and it has no standing before this Association. It must come before this Association; it must be introduced as a new constitution and new amendments before the



Association, and lie over a year before it can be brought in before this committee.

The only thing that is considered before this body is the report of the combined committees, and that is all that can be considered under the constitution and by-laws.

DR. MERILLAT: Our original committee report contained one provision. It wasn't one which specifically recommended that the governing body of the American Veterinary Medical Association shall be constituted of delegates to the Association.

That was adopted unanimously. The second one was that a special committee be appointed to meet with the Executive Board with a view to studying the details, the verbiage, etc., that might be faulty, and we hereby said, "Submit this as a year's notice for revision of the constitution."

That was the sense of our committee report.

Now, words have juggled this, gentlemen; to be perfectly frank with you, I interpret this in this way: That when this special committee met with the Executive Board, they ignored the principles, not only the word but the principles, of the work of this committee constituted of Dr. McLeod, Dr. Cotton and myself, and introduced instead what you have heard the Secretary read, which has nothing whatever to do with the delegate system of representation.

Now, it never was our thought, when we made this recommendation, that this should be done immediately. We wanted more of the members of the American Veterinary Medical Association to study the delegate system with a view to taking it up in the future. Dr. Cary says it is the wisdom of that committee that it couldn't be done.

How in the devil do they know? They didn't try it. Other associations have succeeded under that system. I don't know whether it would be feasible, but I am willing to leave it to the judgment of the Association members. If it is bad, throw it away; if it is good, adopt it.

We say some states have two associations and some have none. If they have none, they don't deserve any representation; if they have two, it is up to the American Veterinary Medical Association to recognize the one that should be recognized.

The present constitution provides for a group of states to get together and provide for an adoption very gradually. It would take six years to adopt it. The existing officers of the Association would remain in office and only be replaced very

gradually, and while I don't say it is wise, gentlemen, I hold that the American Veterinary Medical Association has a right to study the delegate system of administration, with a view of either rejecting it or adopting it at some time in the future. Whether it is wise or unwise is to be decided upon.

Consequently, if we put this back to the Executive Board, together with the discussion that has taken place here about it, I am sure they would be willing to bring it back to us again and discuss it. Laying it on the table and taking it off is splitting hairs.

You say the Board is going to kill it. That condemnation of the Executive Board doesn't hold. I believe the Executive Board is constituted of fair-minded men who have the welfare of the Association at heart. We can depend upon them. They have been elected by postal card vote, and they are free from harm.

DR. CARY: I am not kicking on that committee.

DR. MERILLAT: They are a good committee. Let them study it and bring a report back at such time as may seem fit.

DR. CARY: Will the Secretary read the resolution that established this committee?

. . . Secretary Hoskins read the resolution . . .

SECRETARY HOSKINS: In this committee report the notice is given for the adoption one year hence, and this committee's findings, in conjunction with the Executive Board, will be published so that every member will have an opportunity of studying this prior to the next annual meeting, when it is up for adoption.

DR. CARY: I want the paragraphs read that started the motion that put this committee before this Association, at the top of Page 101.

. . . The Secretary read as directed . . .

DR. KINSLEY: Mr. President, I maintain that has been carried out to the letter, and because of the fact that Dr. Merillat was unfortunate in having a state meeting on, when this committee met in Chicago, I don't believe that is sufficient cause for his condemnation of what was done. We did the best we could under the circumstances in this conference. That is what is proposed, and it is a sort of equalization. I have been trying to reach the end that Dr. Merillat wants, by having this whole proposition resubmitted. He doesn't seem to be able to grasp that situation.

Now, by referring it to the Executive Board, and having it come back with the same recommendations or some modifications is not the one we wanted at St. Louis.

DR. STANGE: It is now going on seven o'clock, and it is apparent that this is going to be a big problem, and, inasmuch as there have been a number of meetings called for six-thirty and seven o'clock, I make a motion that we adjourn.

. . . The motion was seconded and carried . . .

DR. KINSLEY: A question of information. I should like to have a time set for this particular subject so we will know when it is coming up.

PRESIDENT WELCH: We will announce the time when it will be considered.

. . . The meeting adjourned at six-thirty . . .

#### ADJOURNMENT

*(To be continued)*

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### A HANDY GUIDE

Dr. Edward B. Carter, Director of the Biological Laboratories of Swan-Myers Company, Indianapolis, Ind., has prepared a very convenient little folder, giving a schematic arrangement of the first two orders of Schizomycetes according to the new classification given in Bergey's manual. Dr. Carter has indicated after the name of each Family, Tribe and Genus, the page where these will be found in Bergey.

The folder also contains a list of fifty pathogenic organisms, in which are given both the old as well as the new names. Copies of this chart can undoubtedly be obtained by communicating with Dr. Carter, who used it as the basis of a talk given before the Indianapolis Branch of the Society of American Bacteriologists on the night of November 16, 1923.

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Recognizing the dog as the original and most reliable burglar alarm, a great insurance company has reduced the rates for residence burglary, theft and larceny insurance where a dog is kept.

## OTHER MEETINGS

### VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY

The regular monthly meeting of the Veterinary Medical Association of New York City was called to order by the President, Dr. J. Elliott Crawford, in the Academy of Medicine, 17 W. 43rd St., on Wednesday evening, October 3, 1923, at 8:30 o'clock.

The minutes of the June meeting were read and approved.

Dr. Geo. Watson Little read a paper on "Indications for Ccectomy in the Dog." Dr. Little must have spent a great deal of time and thought to prepare this paper so carefully. It was unusually interesting and valuable to the small animal practitioner. He has worked out an unusual and simple technique for performing this operation. He exhibited several specimens, and photographs of the dogs operated upon, both before and after the operation, showing a surprisingly good effect upon the physical condition of the animals.

Dr. E. B. Ackerman read a paper on "The Police Dog." This paper was quite original, and brought out discussions by a number of members present.

Dr. Geo. H. Berns read a paper on "The Veterinarian and the Status of the Veterinarian in New York and Brooklyn Fifty Years Ago." This indeed was an interesting paper, and showed plainly the progress the veterinarian has made, both socially and professionally. He also gave the history of the various veterinary colleges in the city and their struggles for existence during these years. This paper will be published, and surely will be enjoyed by all who read it.

On motion a vote of thanks was extended to the speakers for their contributions to the program.

The Secretary-Treasurer reported having sent check to the Building Fund of the New York Academy of Medicine for \$100.

No further business appearing, the meeting adjourned.

### NOVEMBER MEETING

The regular monthly meeting of the Veterinary Medical Association of New York City was called to order by the Pre-

sident, Dr. J. Elliott Crawford, in the Academy of Medicine, 17 W. 43rd St., at 8:30 p. m., on Wednesday Nov. 7, 1923.

Dr. Alex. Slawson spoke on a treatment for dumb rabies. He cited three cases in dogs that showed symptoms of dumb rabies, and after having received morphin and ether daily for three or four days, these dogs began to eat and apparently recovered. The first case was a chow that showed a dropping of the jaw and other symptoms, but recovered.

The second case, a bull having similar symptoms, recovered after receiving his treatment, but was chloroformed later, and on autopsy by the Health Department no Negri bodies were found in the brain and the regular animal inoculation failed. This case, Dr. Slawson believes, produced a self-immunity that destroyed the Negri bodies, if ever present in the brain.

The third case recovered also. Dr. Slawson believed that his treatment relieved the animal from pain and anxiety, thereby living long enough to produce a natural immunity. This report brought out a number of expressions of opinions on the subject.

Dr. Bruce Blair reported having seen several cases showing some symptoms of dumb rabies, but all started eating about the fourth day after having received high enemas. He did not believe these cases dumb rabies. Dr. O. R. Schueler was of the opinion that all cases of dumb rabies died.

Dr. W. Reid Blair spoke of these cases, and felt sure that when Negri bodies were found in the brain and animal inoculation was positive, we were dealing with a case of rabies, and when these tests were negative he thought we were dealing with some other disease and not rabies. Dr. Crawford, after having seen many cases of rabies, believed all cases died in from two to three days.

Dr. C. G. Rohrer reported having seen several hundred cases of rabies, but could not recall one case that did not die. He also believed one should not be too hasty in making a diagnosis or of mentioning rabies to the owner, thereby saving the owner a great deal of mental anguish. But, when satisfied that it is a case of rabies, notify the Department of Health and let the responsibility of returning the dog to the owner, to be allowed to run at large, rest on the Health Department.

Dr. R. W. Gannett believed that if at this time we have produced an anti-rabic treatment for the prevention of this disease, we might at some time produce a treatment for the disease, or the animal might itself produce a self-immunity



and recover. Drs. Ackerman, McKim, MacKellar and others joined in the discussion.

Dr. Robert S. MacKellar reported an odd accident. A horse in being backed out of his stall upset a steel fork; one of the prongs piercing a new rubber pad, entering the leg at the fetlock and coming out several inches above, only to re-enter the leg a few inches farther up. It required several hours of strenuous labor to cast the animal, and, while freeing the upper portion of the prong, it could not be removed, but finally, with the aid of a good blacksmith's hammer, it was driven down and out. The horse made a very good recovery.

Dr. C. S. Chase and Dr. MacKellar gave a very good report of the A. V. M. A. meeting at Montreal. They reported it one of the best meetings, both educationally and socially, held in some time. Dr. Gannett reported the proceedings of the New York State meeting as most instructive and interesting. Dr. W. Reid Blair read an account of the comparative blood-count in horses, in which it was reported that the running horse developed as high as a 52 per cent red cell count, due to the terrific muscular strain. Dr. Benj. D. Pierce, of Springfield, Mass., was present and reported several interesting cases. He also said that the running horse, doing from 6 furlongs to 1½ mile a race, would develop a 52 per cent blood-count. He would like to have a count made on a trotting horse, required to do from 5 to 10 miles daily.

Lt.-Col. Fraser, from Fort Joy, Governors Island, N. Y., was present and gave a short talk.

The discussion of a proposed amendment to the veterinary practice act brought out a number of opinions from the number present. It was regularly moved and seconded that the Secretary write Dr. Augustus Downing, Assistant Commissioner of Education, at Albany, that it is the expression of this Association that any amendment he might propose that would tend to elevate the veterinary profession would be endorsed by the Association.

The resignations of Drs. Victor Carabba and William Sheppard as members of the Association were accepted with regrets. Dr. Durner reported the illness of Dr. John J. Foy a member of the Association. The Secretary was instructed to write a letter of sympathy to Dr. Foy.

Dr. W. Reid Blair reported having had his attention called by Dr. F. H. Miller, a short time ago, to a very unusual case

in a dog. The doctors were of the opinion that possibly they were dealing with a new disease. Dr. C. G. Rohrer reported having seen a number of cases, showing mixed typical and atypical rabies symptoms, that recovered. He mentioned that Dr. W. Byron Coakley, of New York, who has done a great deal of research during the past eighteen years, in diseases of the dog and cat, had found a new disease in the dog, cat, monkey, guinea pig, rabbit and other animals in 1906.

One type of this disease in the dog resembles closely the furious type of rabies. Another type resembles dumb rabies. There were types resembling, respectively, the pulmonary, nervous and intestinal types of distemper and hepatogenous jaundice. The retinas, the various muscle groups, all of the nerve centers, as well as the mentality, were affected in other cases. All of the cases showed mixed typical and atypical rabies symptoms, one case showing all of the typical symptoms usually found in a case of dumb rabies, and two cases, exhibiting three typical symptoms of furious rabies, recovered without treatment. Typical and atypical Negri bodies were found at autopsy in most of the cases. The morbidity and mortality were as great among the older animals as among the young. Because of the lack of proper terminology, he and others had been calling the ailment "Coakley's Disease."

On motion a vote of thanks was extended the speakers of the evening.

No further business appearing, the meeting adjourned.

C. G. ROHRER, *Secretary*.

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## NORTH CENTRAL IOWA VETERINARY ASSOCIATION

The fall meeting of the North Central Iowa Veterinary Association was held at Fort Dodge, Iowa, November 8, 1923. The meeting was called to order by President C. W. Anderson, of Jewell, who, in a short address, stressed the need for attendance at the Association meetings and the need for proper organization of the profession.

Papers were given by Dr. J. H. McLeod, of Charles City, on "Recent Legislation Affecting the Profession," and by Dr. E. R. Steel, of Grundy Center, on "Some Matters of Interest to the Profession." These two papers were discussed by Drs. Treman, of Sac City, and Moye, of Manson, and by the membership generally.

We were particularly fortunate in having with us Sir Arnold Theiler, Director of Veterinary Education and Research for the Union of South Africa. Sir Arnold gave a most interesting address, reviewing the history of his country and the work that he has undertaken. Among other interesting statements was one that encouragement for veterinary work in the Union of South Africa has been received from the United States. He mentioned particularly the work done on Texas fever, and that this work has served as an impetus for work done in South Africa with diseases which are transmitted by ticks and other insects.

Dr. C. H. Stange, Dean of the Veterinary Department at Iowa State College and President of the American Veterinary Medical Association, addressed the meeting on "Future Activities of the Profession."

Dr. G. E. Golden, B. A. I., Sioux City, Iowa, gave a paper on "The Eradication of Tuberculosis."

The meeting was then adjourned, and in the evening a dinner and dance was given by the Fort Dodge Serum Company.

H. J. SHORE, *Secretary.*

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### NEVADA STATE VETERINARY ASSOCIATION

The 1923 annual meeting of the Nevada State Veterinary Association was held at Reno, November 9, 1923, having been postponed from January of the same year

The forenoon was devoted to a demonstration of clinical cases of bovine lymphangitis at a local dairy, by Dr. N. E. Nielsen. Approximately twenty cows affected with the disease in various stages were presented for the members' consideration.

After a recess for luncheon, the members gathered in the Agricultural Building of the University of Nevada for a combined literary and business session.

The subject of bovine lymphangitis with special reference to its importance as a complicating factor in tuberculin testing was presented by Dr. N. E. Nielsen. Dr. Jacob Traum, of the University of California, gave a most interesting and comprehensive talk covering his work on bovine lymphangitis since the condition was originally reported by him in 1916. Dr. Traum dwelt more especially on the pathological and bacteriological aspects of the disease. The discussion on these two talks

was led by Dr. L. C. Butterfield, supplemented with remarks by Dr. R. A. Given and Dr. Stanley Worley.

At a short business session Dr. R. A. Given and Dr. Stanley Worley were elected to membership in the Association.

Dr. W. H. Hilts, of Elko, was elected President of the Association, Dr. N. E. Nielsen, of Reno, Vice-President, and Dr. Edward Records, of Reno, Secretary-Treasurer.

The Association dinner was held at the Hotel Golden, twenty members of the Association and guests participating. After dinner, the Association reconvened in the Agricultural Building, where brief but valuable and interesting reports were presented as follows: "Tetanus in Sheep," Dr. Robert Dill; "Results of Bovine Abortion Vaccination," Dr. W. B. Earl; "Equine Abortion," Dr. G. E. Bamberger; "Braxy in Sheep," Dr. L. R. Vawter; "Red Water Disease in Cattle," Dr. F. H. Baker; "Tularemia," Dr. W. H. Hilts.

The presenting of these reports together with the discussion upon them provided what everyone considered a well-spent evening.

EDWARD RECORDS, *Secretary*.

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### CENTRAL NEW YORK VETERINARY MEDICAL ASSOCIATION

The fourteenth semi-annual meeting of the Central New York Veterinary Medical Association was held at Syracuse, New York, November 20, 1923. The meeting opened with a clinic at the infirmary of Dr. J. A. Pendergast, and included the following cases:

Case 1—Gray Gelding—Quittor.

Surgeons—Drs. Long and Danforth.

Case 2—Brown Gelding—Ulcerated tooth—Trephined and punched out.

Surgeons—Drs. Danforth and Pendergast.

Case 3—Bay Gelding—Poll evil.

Surgeons—Drs. Stack and Long.

Case 4—Fox terrier—Enlarged mammary gland—Removed by the knife.

Surgeon—Dr. F. E. McClelland.

While not having as many cases as at some of our former clinics, it was most interesting and instructive. During the course of the clinic a lunch was served, as is our usual custom.

At two o'clock we adjourned to the St. Cloud Hotel, where the regular business session was called to order at 2:45 p.m., with President Danforth in the chair. Roll-call showed the following members present: Drs. D. A. Boardman, J. K. Bosshart, F. N. Burke, W. L. Clark, A. L. Danforth, E. E. Dooling, W. G. Hollingworth, J. B. Knapp, W. M. Long, H. D. Laird, Frank Morrow, J. A. Pendergast, W. M. Pendergast, J. C. Stevens, J. H. Stack, W. M. Sullivan, W. B. Switzer, A. J. Tuxill, Joseph Turner, H. J. Milks and Prof. V. A. Moore.

Dr. Joseph Turner was regularly elected as an associate member.

A vote was taken upon the proposition of changing the by-laws to give the Association power to change the place of the annual meeting to a place other than Syracuse, upon a majority vote of the members present at the preceding semi-annual meeting, which was duly carried. Subsequently a motion to rescind this action was unanimously carried, and a committee was appointed to draw up a new resolution in regard thereto. Drs. Tuxill, Pendergast and Clark were duly appointed as such committee, and they presented the following resolution:

RESOLVED: That our by-laws be so amended that this society have the power to change the place of any of its meetings to some other place than Syracuse by a majority vote of the members present at any preceding meeting.

After discussion, a motion was made, seconded and carried to lay the matter on the table indefinitely.

The meeting then opened under the head of "Papers." The first speaker was Dr. D. H. Udall, of the New York State Veterinary College, who gave a very instructive talk on skin diseases. A good discussion followed, and Dr. Udall supplemented his address by answering questions upon the subject.

Next followed Dean V. A. Moore, who took for his subject: "Veterinary Education and the Future of the Profession." He presented vital facts which confront the regular practitioner of today. Following Dean Moore's address the following resolution was adopted unanimously:

RESOLVED: That the Central New York Veterinary Medical Association wishes to go on record as being opposed to the appointment of County Veterinarians, and to the making of any other appointments by the State or Federal authorities which in any way infringe upon the practice of local veterinarians who are graduates of recognized veterinary colleges and who have complied with all State laws relating to the general practice of veterinary medicine and surgery, and who are duly registered and entitled to practice the same.

The Secretary was instructed to send a copy of the foregoing resolution to both veterinary journals.



Dr. F. E. McClelland, of Buffalo, was the final speaker and gave a very interesting and instructive talk on "Small Animal Practice." He is exceptionally well posted on that branch of practice, and made many suggestions that will be of practical use to all who were privileged to hear him.

This concluded one of the best meetings yet held by this Association.

W. B. SWITZER, *Secretary.*

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### **SOUTHWESTERN MICHIGAN VETERINARY MEDICAL ASSOCIATION**

Sixty veterinarians gathered together in Kalamazoo, Mich., November 21, 1923, and organized the Southwestern Michigan Veterinary Medical Association. The meeting was called to order by Dr. B. J. Killham, State Veterinarian, who spoke upon the advisability of having an organization of the veterinarians in that part of the State.

A motion prevailed to form an Association, and the following officers were elected: President, Dr. F. E. Stiles, Battle Creek; Vice-President, Dr. J. A. Schaefer, Bangor; Secretary-Treasurer, Dr. George McCollister, Kalamazoo.

The literary program was opened by Dr. McCollister, who discussed the hog cholera situation in Southwestern Michigan. Recess was then taken for lunch, and the program resumed at 1 p.m. Dr. H. J. Stafseth, Poultry Pathologist, of the Michigan Agricultural College, spoke on some of the more important diseases of poultry encountered in Michigan. Dr. E. T. Hallman addressed the meeting in his usual interesting fashion on his particular hobby, "Sterility."

"Pitfalls in the Vaccination of Garbage-fed Hogs" was presented by Dr. J. M. Miller, of Benton Harbor. The care, management and nursing of sick dogs was covered in an interesting paper read by Dr. E. K. Sales, of the Michigan Agricultural College. Dr. S. R. Johnson, Pathologist of the Department of Agriculture, briefly discussed "Fright Disease in Dogs."

Everybody present felt that they had been well repaid for the time spent in going to and attending this meeting, with the result that it was decided to hold another meeting in March.

GEORGE MCCOLLISTER, *Secretary-Treasurer.*

### UNITED STATES LIVE STOCK SANITARY ASSOCIATION

The twenty-seventh annual meeting of the United States Live Stock Sanitary Association convened at the La Salle Hotel, Chicago, December 5, 1923. A very attractive program, arranged by President Butler and Secretary Dyson, resulted in an unusually large attendance at all of the sessions.

Wednesday afternoon was devoted to the subject of hog cholera, and the following papers were presented: "Source of Infection in Primary Outbreaks of Hog Cholera," by Dr. I. K. Atherton, College Park, Md.; "Supplemental Studies of Post-Vaccination Troubles," by Dr. E. A. Cahill, Zionsville, Ind.; "State Sanitary Regulations for Hog Cholera Control," by Dr. H. A. Wilson, State Veterinarian, Columbia, Mo., followed by the report of the Committee on Hog Cholera Control, by Dr. C. H. Stange, Chairman.

Then followed two very interesting papers dealing with the subject of nutrition: "Nutritional Diseases of Cattle and Swine," by Dr. H. C. H. Kernkamp, of the University of Minnesota, and "Nutritional Diseases of Poultry," by Dr. J. R. Beach, of the University of California. Dr. A. F. Schalk presented the report of the Committee on Nutritional Diseases.

The entire session Thursday morning was devoted to tick eradication, three papers being presented on this subject: "Application of the Zone Plan in Systematic Tick Eradication," by Dr. William Moore, State Veterinarian, Raleigh, N. C.; "Is It Advisable to Undertake Tick Eradication Without Available Funds?" by Dr. J. H. Bux, State Veterinarian, Little Rock, Ark.; and "A Review of the Year's Work in Tick Eradication," by Dr. R. A. Ramsey, Washington, D. C.

Thursday afternoon the session was devoted entirely to bovine infectious abortion, and the following papers were presented: "Breeding Efficiency of Pure Bred Dairy and Beef Cattle," by Dr. W. L. Boyd, of the University of Minnesota; "The Experimental Production of Bang Abortion Disease," illustrated with lantern slides, by Drs. R. R. Birch and H. L. Gilman, of the New York State Veterinary College, Ithaca, N. Y.; and "Regulatory Measures in the Control of Abortion in Cattle," by Dr. J. W. Connaway, of the University of Missouri. These papers were followed by the report of the Committee on Abortion, by Dr. C. P. Fitch.

The session Friday morning was the largest attended session of the meeting. The following phases of tuberculosis were presented: "Present Status of Cooperative Tuberculosis Eradication Work," illustrated by a number of very graphic charts, by Dr. J. A. Kiernan, of the U. S. Bureau of Animal Industry, Washington, D. C.; "The Inter-Relation of Human and Bovine Tuberculosis," by Dr. M. P. Ravenel, of the University of Missouri; "Suggestions for Private Practitioners Conducting Tuberculin Tests Under the Accredited-Herd Plan," by Dr. C. H. Case, Akron, Ohio; "Agencies Through which Bovine Tuberculosis is Disseminated," by Dr. E. C. Schroeder, U. S. Bureau of Animal Industry. "The Relation of Indemnity to the Control of Tuberculosis" was discussed by the following: Dr. A. E. Zimmer, Columbus, Ohio; Dr. C. E. Cotton, St. Paul, Minn.; Dr. W. B. Lincoln, Nashville, Tenn.; Dr. W. F. Crewe, Bismarck, N. D.; Dr. T. E. Munce, Harrisburg, Pa.; and Dr. P. Malcolm, Des Moines, Ia.

At the Friday afternoon session Mr. Everett C. Brown, President of the National Live Stock Exchange, Union Stock Yards, Chicago, Ill., who was unable to be present at the morning session, presented the subject of salvage for reactors from the standpoint of the packer and owner. The speaker explained very clearly the reason why reactors were bringing cattle owners such disappointing salvage returns. In short, the market was glutted, the result of so many reactors being sent to Chicago for slaughter. The question is receiving serious study with a view to equalizing the marketing of reactors and preventing the present conditions which forced this class of cattle down to \$2.90 recently.

The report of the Tuberculosis Committee was received with a great deal of interest. This Committee had been in session during practically the entire time of the meeting, listening to grievances and receiving suggestions for modifications of the uniform accredited herd plan. Practitioners from many states waited upon the Committee, asking for elimination of the present discrimination between private and official veterinarians, especially in the matter of federal indemnity.

The following portion of the Committee's report will be of interest in this connection:

"All available information points to the fact that the work on the control and eradication of bovine tuberculosis can be further advanced by permitting accredited veterinarians to retest accredited herds as provided in section 6, paragraph A, of the uniform accredited plan.

A general compliance with this provision is therefore recommended.

"It is urged that this Association recommend to the U. S. Secretary of Agriculture that when 15 per cent of the total Federal indemnity allotted to be paid for tuberculous cattle, tuberculin tested by accredited veterinarians, is not sufficient to meet the demands in a given state, that an additional amount of the state allotment shall be used, provided sufficient funds are available.

"If this recommendation is accepted by the U. S. Department of Agriculture, section 6, paragraph F, of the uniform accredited plan shall then be changed to read as follows:

"Upon written instructions from the proper state official, accredited veterinarians may conduct tuberculin tests at the owner's expense on herds in the process of accreditation in states which approve of this method of testing, until all animals in the herd have passed one negative test; provided, however, that in such herds Federal indemnity shall be payable only in accordance with the regulations of the U. S. Department of Agriculture, which further provide that when 15 per cent of the total Federal indemnity allotted to each state is not sufficient to meet the demands in a given state, for cattle which may react to tests conducted under this plan by accredited veterinarians, then an additional amount of the State allotment shall be used, provided sufficient funds remain available."

In effect, if this recommendation is approved by the Secretary of Agriculture, and in turn accepted by the individual states, the present limit of 15% of the federal indemnity (amounting to \$300,000) allotted for the payment of indemnity for tuberculous cattle disclosed by tests made by accredited veterinarians, will be removed.

One of the resolutions adopted by the Association is an indication of the present trend of opinion regarding farmer vaccination, legislation and veterinary education. It is as follows:

WHEREAS, the promiscuous distribution and use of biological products containing living organisms or viruses is dangerous and a menace to the live stock industry of the country, and

WHEREAS, much money is being appropriated and expended in an effort to prevent, control and eradicate transmissible diseases of live stock, particularly some of the diseases in which these living viruses are being used, and

WHEREAS, a number of our states are expending considerable money for the training of men in the diagnosis, prevention and control of transmissible animal diseases, and

WHEREAS, the present low enrollment of students in these colleges is believed to be the result, in part, of legislation adverse to the practicing veterinarian, and

WHEREAS, the present rate of graduating trained veterinarians, unless increased, will not insure the live stock industry of this country the necessary veterinary protection, be it

RESOLVED, that this Association go on record as opposed to the use of biologics by laymen, and to the enactment of any legislation that will legalize the use of such biological products by any persons not trained in the diseases of animals.

The election of officers resulted as follows: President, Dr. J. G. Ferneyhough, Richmond, Va.; First Vice-President, Dr. J. H. McNeil, Trenton, N. J.; Second Vice-President, Dr.

J. H. Bux, Little Rock, Ark.; Third Vice-President, Dr. Benj. D. Pierce, Springfield, Mass.; Fourth Vice-President, Dr. P. E. Quinn, Harrisburg, Pa.; Fifth Vice-President, Mr. A. J. Gloyer, Fort Atkinson, Wis.; Secretary-Treasurer, Dr. O. E. Dyson, Kansas City, Mo.

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### CENTRAL MICHIGAN VETERINARY MEDICAL SOCIETY

After an interval of over one year, during which no meetings were held, the Central Michigan Veterinary Medical Society met in Jackson, Michigan, Wednesday, December 12, 1923, and participated in a splendidly arranged program.

Dr. E. T. Hallman, of East Lansing, opened the program by addressing the meeting on the subject of "Sterility in Cattle." Dr. Hallman did not attempt to cover the entire subject, but discussed only a few of the more important phases of the subject. A very interesting discussion on the handling of cervicitis followed.

"Poultry Diseases" was the subject selected by Dr. H. J. Stafseth, Poultry Pathologist, of the Michigan Agricultural College. Dr. Stafseth related numerous instances where veterinarians had materially increased their income by paying more attention to poultry diseases.

Owing to the fact that a number of smaller cities and towns in Michigan have been seriously considering the advisability of municipal meat and milk inspection, different phases of this subject were presented by Dr. R. A. Runnells, of the Michigan Agricultural College, and Dr. H. H. Sparhawk, Chief Veterinarian, Detroit Department of Health. Their remarks brought out a splendid discussion.

Dr. E. K. Sales, of Michigan Agricultural College, presented a paper entitled, "The Care, Management and Nursing of Sick Dogs." Dr. Sales paid particular attention to hygiene and dietetics in connection with the successful handling of canine diseases.

Dr. L. A. Wileden, of Mason, and Dr. A. B. Curtice, of Hillsdale, presented the subject of bovine tuberculosis. Dr. Wileden very frankly presented exact figures showing the effect of the recent tuberculosis eradication activities, both State and Federal, upon his income from tuberculin testing. In spite of the present adverse conditions, Dr. Wileden appeared to be rather hopeful



for the future. Dr. Curtice, who is located in a county designated as modified accredited area, brought out an interesting point in connection with tuberculosis work in such a county. He pointed out that it would be possible, under present conditions and regulations, for certain animals to reach the age of three and one-half years without being tested or tagged for identification, and such animals be allowed to leave the county without any restrictions or any provisions for keeping track of such animals.

Dr. Ward Giltner, Dean of the Veterinary Division of the Michigan Agricultural College, spoke on veterinary education. He briefly reviewed the history of the Veterinary College at East Lansing, and recalled that it had been established upon the urgent solicitation of the practicing veterinarians of the State. Dr. Giltner sounded a note of warning to the effect that there was every indication of there being a shortage of trained veterinarians at some time in the future, unless there was some increase in the enrollment of students in our veterinary colleges. He did not know just when this shortage would come, but felt that the present situation amounted to a survival of the fittest, in which a number of men, who had come to a realization that they were not properly equipped to cope with present conditions, were leaving the profession to enter other fields.

Dr. Giltner's talk was followed by a very vigorous discussion led by Dr. C. C. Mix, of Battle Creek, who very strongly maintained that the present low enrollment in our colleges was the direct result of the profession not offering the financial inducements enjoyed by those who were following certain other professions or commercial pursuits.

The meeting then adjourned to the dining room of the Otsego Hotel, where a splendid banquet was served, followed by two after-dinner talks. The first was by Dr. B. J. Killham, State Veterinarian, who chose for his topic, "Practical Farm Sanitation." Dr. Killham briefly reviewed the fundamentals of sanitation, and gave many excellent suggestions for applying sensible sanitation in farm conditions. He related what had been accomplished in the control of round-worm infestation in hogs, by the so-called McClean County system of farm sanitation. Dr. Killham also called attention to the fact that thousands of dollars were expended every year for disinfectants, which were not used intelligently and, therefore, with very little good results, only to give the user a false sense of security.

The other speaker was Dr. H. Preston Hoskins, Secretary of

the American Veterinary Medical Association, who brought greetings from the national association. He directed attention to the fact that the proposed policy for the A. V. M. A. had been published in the December issue of the JOURNAL, and asked every member to read it and study it diligently. Dr. Hoskins discussed the paragraphs entitled "Regulatory Service" and "Veterinary Biologics," because these two sections in the proposed policy appeared to have attracted the most attention. The intent of each of these two sections was clearly explained by him.

Dr. Hoskins also briefly reported upon several features of the recent meeting of the United States Live Stock Sanitary Association, quoting portions of the report of the Tuberculosis Committee, recommending the elimination of all discrimination between different classes of veterinarians. He also read the resolution adopted, deploring the enactment of any legislation that would legalize the use of biological products by any others than competent veterinarians.

W. N. ARMSTRONG, *Secretary-Treasurer.*

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### WESTERN NEW YORK VETERINARY MEDICAL ASSOCIATION

The Western New York Veterinary Medical Association held its tenth annual meeting on Friday, December 14th, 1923, at Buffalo, N. Y.

The meeting opened at 2:00 p. m. with clinics, where cases for observation, diagnosis and operation were considered. This was followed by a business meeting, with thirty-five members present. Routine business was transacted and resolutions passed on the death of Dr. Horatio S. Wende, late of Tonawanda, N. Y., and a charter member of the Association. The Committee on Rates and Charges submitted a report, and the matter was discussed. The Secretary was requested to send each member a copy of said report, for his consideration, to be returned with comments to the Secretary, who in turn would bring them to the Committee for a final decision.

At the close of the business session, dinner was served at the Palais Royal.

A literary program followed, at 8 p. m. Dr. W. J. Lentz, Director of Small Animal Clinics at the University of Pennsylvania, gave an address on canine distemper or influenza,

taking up the various stages and phases of the disease in a concise and able manner. Dr. F. E. McClelland, of Buffalo, N. Y., read a paper on "Some Unusual Cases We Meet in Small Animal Practice," which was highly interesting and instructive.

The ladies were very adequately entertained during the afternoon by Mrs. E. L. Volgenau, the hostess for the occasion. They joined the gentlemen at dinner, after which a party at one of the local theatres was enjoyed

The following officers were elected for the ensuing year: President, Dr. Chas. D. Blaser, of Buffalo, N. Y.; Vice-President, Dr. F. F. Koenig, of Jamestown, N. Y.; Secretary-Treasurer, Dr. F. F. Fehr, of Buffalo, N. Y. Two directors, Dr. E. C. Cleveland, of Cattaraugus, and Dr. F. E. McClelland, of Buffalo, were elected for a term of three years, succeeding Drs. N. P. Hinckley, of Buffalo, and J. L. Wilder, of Akron, whose terms expired.

The Association will hold its next semi-annual meeting the second week in July, 1924, at Akron, N. Y., guests of Dr. J. L. Wilder.

F. F. FEHR, *Secretary-Treasurer.*

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### THE PIT-MOR-IAN

Number one of Volume one of the The Pit-Mor-ian has made its appearance. The publication contains "friendly chats on matters pharmaceutical and biological" and will be "issued occasionally" by Pitman-Moore Company, for circulation among their "friends of the veterinary profession." The initial number contains a variety of short talks on some of the P-M leaders. Every veterinarian should be on the mailing list to receive this publication.

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### FULLY DESERVED

The Sunday Magazine Supplement of *The New Orleans Item*, for December 9, 1923, contained a colored, two-page spread entitled "Dr. Dalrymple Loses Thousands to Save State Millions." Accompanying the article are three interesting photographs, showing Dr. Dalrymple as a boy, as a young man, and as he is today. The author pays a splendid tribute to our "international authority on veterinary science," and relates some of the many personal sacrifices Dr. Dalrymple has made in behalf of the South in general and Louisiana in particular. The best part is that the author did not overdo it. It's all true.

## COMMENCEMENTS

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### ST. JOSEPH VETERINARY COLLEGE

On November 7, the St. Joseph Veterinary College held commencement exercises and graduated the following: O. R. Baird, L. V. Cowton, C. H. Hartman, M. T. Lewis, James E. Kelly, E. H. Meyer, John T. Schwab, J. B. Sigrist, L. W. West, E. Dewey Wilder, A. E. Wilcox, and E. E. Yingling.

Last year these young men were juniors in this institution and by special arrangements with the Chief of the Bureau of Animal Industry, permission was obtained to continue college through the summer season and graduate them this fall. This arrangement was carried out and a splendid course of instruction given them. In fact, I do not think any class has ever been graduated from this college that had a stronger, better regulated course than this one and the young men going out at this time are certainly well equipped to enter the veterinary profession. They are a high class of young men and I predict for them success in every way.

Last April the college graduated the following: H. L. Bennett, L. C. Feichtinger, J. E. Burch, Jay Cottingham, E. R. Davis, E. R. Fisher, R. C. Grubb, W. E. Hoot, J. M. Holliday, F. G. Kelly, J. C. King, P. C. Lahs, W. R. Lawrence, C. T. Loy, Rease Mitchem, T. R. Morse, W. I. Nelson, A. N. Overbaugh, C. E. Schlotthauer, K. Sears, T. J. Sharpe, R. H. Slagle, N. D. Stanley, R. B. Station, F. E. Williams, J. H. Foley, A. C. Garrett, and J. L. Boyle.

Owing to the fact that no catalog was issued this year, their names have never been published. This, also, was an excellent class of young men, and they deserve the respect of the veterinarians of the country.

At a recent meeting of the Board of Directors of this college, it was voted not to hold a session this year, and committees were appointed to dispose of the real and personal property of the institution. In closing up the institution in this way, it preserves the good name that it has borne among the veterinarians and we trust that the men graduated from it in the last few years will soon be accorded the courtesies due them from all veterinary organizations in the country.

The Class of 1923 was matriculated under an agreement entered into between the Bureau of Animal Industry, the War Department and the American Veterinary Medical Association, but at the New Orleans meeting, late that fall, the A. V. M. A. demanded four years of high school as an entrance requirement. The following year the St. Joseph Veterinary College met the requirements of the Bureau of Animal Industry, but were never honored with recognition by the A. V. M. A.

It was the ambition of the writer to continue the college, however, until these men had an opportunity to graduate. Most of them graduated in April 1923. Two or three who had missed out from one cause or another and others who met the high school requirements and matriculated the next year, constituted the class that graduated on the 7th of November, 1923.

We hope to live to see the day that the A. V. M. A. will open its doors to these young men. They are worthy in every respect and were all matriculated, taught and graduated under the agreement that existed at the time of their matriculation.

R. C. MOORE, *Secretary*.

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### **SHEEP PARTICULARLY SUBJECT TO PARASITES**

Sheep probably suffer more from parasites than do any other kind of live stock, says the United States Department of Agriculture, in a publication just issued, entitled "Parasites and Parasitic Diseases of Sheep," by Dr. Maurice C. Hall, of the Bureau of Animal Industry. Most of our losses in sheep, mutton, and wool are from animal parasites, as sheep suffer comparatively little from bacterial diseases, it is said. Lambs and young animals are most susceptible to parasites and suffer most from them.

Pasture rotation, use of forage crops, feeding from racks or bare floors, draining or filling swamps, and restraint of wandering dogs are measures the Department recommends as being of value in parasite control. It points out emphatically that *permanent pastures perpetuate parasites*. Parasite eggs pass in the manure, usually. The disposal of the manure determines the fate of these eggs, whether they find the way back into the animals and hatch out or not.

Copies of the bulletin may be had without cost, as long as the supply lasts, by writing to the Department of Agriculture, Washington, D. C. Ask for Farmers' Bulletin 1330.



## ARMY VETERINARY SERVICE

### NEW APPOINTMENT AND PROMOTION POLICY FOR MEDICAL DEPARTMENT RESERVES

The War Department has issued a new regulation governing appointment and promotion in the medical section of the Officers' Reserve Corps. It has undoubtedly been the desire of the Department to give to the veterinary profession of America a more satisfactory basis for appointment and promotion in the new reserve, and one which is free from the objectionable features of former requirements of these two important features of the reserve organization.

Under these new regulations, promotion in the reserve is given on the impartial and incontrovertible basis of length of commission in the reserve. There are no ifs nor ands nor meticulous reference to past records. A man who serves five years in one grade and who is of normal development in his profession, is eligible for promotion to the next higher grade, provided he is physically qualified for commission. Professional examination is waived for promotion from the lowest grade to the highest grade with one notable exception—the reserve officer who passes from the grade of major to lieutenant-colonel must be tested to determine his fitness for the administrative responsibilities of a higher grade. This is manifestly done to save the Government, as well as the individual, from the injustice of incurring a responsibility for which the individual is not qualified or gifted. Even for this one examination, however, a distinct advance has been made, since the Surgeon-General has evidently differentiated between the character of service and responsibility which the citizen reservist will be called upon to perform. Thus this communication is divided into four broad types:

- 1 for administrators,
- 1 for sanitarians,
- 1 for supply men,
- 1 for professional group.

This last group includes consultants and chiefs of services and specialists in medicine and allied sciences.

It is manifestly the desire of the Surgeon-General of the Army to adapt the examination to the candidate's special field of endeavor, and by limiting the examination to one grade, to avoid the unnecessary examination of busy professional men.

The changes outlined have many advantages to the profession over prior rules, but none more acceptable than a clear, simple and fair rule of promotion which will apply equally and justly to all comers.

The appointment features of the new regulations are far superior to the former ones. Two groups are recognized. The first includes original appointees who are given appointment by virtue of their established professional standing. The second includes former service men and men who, while not in the military service in the World War, were engaged in essential public service analogous to military service and necessary to the function of the Government in the conduct of the war. There are many perplexing problems in adjusting the reappointment rank of the several classes in this latter group, but it is clear that the Department has labored seriously to arrive at a just standard.

The organization of the reserve is a national responsibility which must be shared equally by the citizen and professional soldier. The Veterinary Corps of the Army in time of great national emergency will include so great a majority of the active and distinguished members of the veterinary profession of America that the responsibilities of this department will become that of the veterinary profession of America.

The Medical Department of the Army now calls for the cooperation of the body of the civil profession, and manifests a laudable spirit in offering appointment and promotion in the reserve under the most favorable possible terms consistent with the organization of a dependable agency. The defence plans for this country in a major emergency call for 3,000 veterinary officers, while the present enrollment in the Reserve Corps is 730. The Army Medical Department now seeks to enroll and classify personnel to fill places in prospective medico-military units, so that in a future emergency past errors may be avoided. The Medical Department has placed the reserve on a most favorable footing for the profession. It rests with the profession to come forward and by joining hands to establish a medical reserve system which will afford a protection for the present and guidance for the coming generation.

Veterinarians who are interested in this subject, and who desire further information, should communicate with the Adjutant-General's Office, War Department, Washington, D. C., and refer to A.G.O:6212 O.R.C. (10-12-23) Res.

## COMMUNICATIONS

### FROM A MEMBER IN ST. KITTS

TO THE EDITOR:

I have the pleasure of yours of the 11th ult., and am exceedingly sorry that I was unable to reply ere this. I beg to acknowledge membership card for year beginning September 1. Many thanks for same. I am very sorry that I was unable to attend the Montreal meeting, but in consequence of the isolated position of these small places it is difficult to get any one to act. I would be only too glad if I could get the Government to pay a man while I am on leave, if I could get some one to act for me, as I have not seen the dear old U. S. or Canada for nearly twelve years. Some time, eh!

Well, I have been in this Government's service for seven years and no vacation yet. Pretty tough on a fellow, but I have a wife and two boys, six and four years respectively, to look after and I can't give up a sure thing. I enjoy myself riding the Government's thoroughbred English stallion that I managed to get them to import for improving the breed of light horses. His name is Sorghum by Buckwheat out of Kill Hill, tracing back to Bend Or on sire's side and Kilmarlin on dam's side. Kilmarlin, sire of Ogden, sire of The Finn, sire of Zuo, is one of the best three-year-olds in the U. S. this year. So you see he is not too bad.

He won three races as a two-year-old; carrying top weight 127 pounds at seven furlongs in one race. As a three-year-old he won one race, the Kestwen Plate at Lincoln, one mile and three furlongs. He was unplaced in the Chippenham Plate at Newmarket. He is very quiet. He is not a tall horse, 15.2 hands, but a very sturdy looking animal with powerful hind quarters. He is now six years old. His first crop of foals, about one dozen, were born this year. They all come like him in color markings—bay, with a blaze face. Riding him, when I get time, is the only amusement I get around here, except the universal cinema.

Enclosed \$2.00 for lapel emblem and one for my car. At last I have got a car. They are very good in their way, but an old horse does not give so much trouble. I have two ponies—one I have owned seven years, and he has never been sick a day yet. He has picked up nails which incapacitated him once for

fourteen days. He is always ready, slow and sure, no buttons to push, no horn to honk, etc. The other is a mare. She is very fast in harness and is now in foal for Sorghum.

Again thanking you and with kind regards, I remain,

Yours sincerely,

ERNEST F. JARDINE,

*Gov't Veterinary Surgeon.*

*Basseterre, St. Kitts, B. W. I.*

*September 14, 1923.*

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### IODINE FOR STOMACH WORMS IN SHEEP

TO THE EDITOR:

Preliminary experiments have shown that a weak solution of iodine is a safe and effective treatment in the killing of the stomach worms in sheep. Further experiments will be carried on.

G. H. LAMSON, JR.

A. F. SCHULTZ.

*Storrs Agricultural Exp. Station,*

*Storrs, Conn., December 15, 1923.*

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### DANGER AHEAD

TO THE EDITOR:

Under this heading the editorial in the December number calls attention to a possible lack of qualified veterinarians.

The collection of facts regarding the probable supply of veterinarians is important and valuable information, but the conclusion drawn, that the attempts to modify existing laws to allow non-graduates to practice is due to a lack of qualified veterinarians, does not correspond with our information.

Data furnished by about one hundred traveling salesmen covering most of the United States, indicates that established practitioners as a rule are not overworked; that localities where no qualified veterinary service is available are very few, and in these cases the opportunities for a veterinarian are so limited it is doubtful if one could make a satisfactory living.

Many requests are received from graduate veterinarians for information as to possible locations. If the editor knows of a locality that needs and can support a qualified veterinarian, the writer can furnish the names of graduates who are looking for locations.

While efforts to modify existing laws to permit unqualified men to practice are sometimes made under the cloak of need for veterinary service, every case that we know of can be traced to *some selfish motive*, generally a politician wants to make a place for a "quack" friend.

N. S. MAYO.

Chicago, Ill., Dec. 8, 1923.

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(The editorial in the December JOURNAL made no claim that there is any shortage of veterinarians at the present time. As a matter of fact, there seem to be enough. However, it is practically unanimously agreed, by those who have given the matter serious, unselfish consideration, that the present reaction can go too far in the direction in which it now appears to be headed. There can be only one result—a shortage of properly trained veterinarians. This may not come for five years. It may not come for ten. But it will come.

It should not be forgotten that it now takes from four to six years to secure a veterinary education. A veterinarian can drop out of the profession in as many seconds. Records show that few come back. A shortage of veterinarians can not be turned into a surplus, or even made up, in a week, a month, or a year. Many things might happen to our live stock industry while we are replenishing the supply of veterinarians.

As for legislation, we are only too well aware of the fact that practically, without exception, attempts to tamper with our veterinary practice acts are prompted by "some selfish motive," as claimed by Dr. Mayo, but we have heard of very few instances where the plea was not made, in behalf of some quack who figured on being granted a license to practice, that "he is located in a territory where there are no veterinarians; he is needed by the live stock owners in his community, and we would like to see him registered, etc."

The plea—a shortage of veterinarians—is the one most frequently made, because it is the one that usually proves most effective. It is our duty to do everything to conserve the supply of qualified veterinarians and not allow conditions to become such that our laws will be relaxed because of an actually existing shortage of veterinarians.

So far as the future is concerned, while on the subject, we might quote from an editorial in the December issue of *The Veterinary Alumni Quarterly*, as follows: "Undoubtedly a shortage of veterinarians is imminent. It looks as if this were a good time for young men of the proper type to consider entering the profession."—EDITOR.)

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### FOR PROLAPSED VAGINA IN COW

At the International Live Stock Exposition in Chicago, a pure bred cow was noted that had a small bullring placed through both lips of the vulva, to prevent a prolapse of the vagina. The owner stated that it gave very satisfactory results, and that sometimes two bullrings were used.

This seems to be a very practical and simple method of dealing with this problem. We have never noted the use of this instrument for this purpose before.

N. S. M.



## MISCELLANEOUS

### SIR ARNOLD THEILER KEPT BUSY

Sir Arnold Theiler has been kept rather busy delivering addresses in various parts of the country since the Montreal meeting. Some of the engagements which he has filled include the following: An address on "The Animal Diseases of South Africa," before the staff of the Biological Laboratory, Health of Animals Branch, Ottawa, Canada; "Diseases in Animals Caused by Toxic Plants," before the Ontario Veterinary Association, in Toronto; "Parasitic Diseases of South Africa," before the Helminthological Society, Washington, D. C.; "The Tropical Diseases of Africa," before the Pennsylvania State Veterinary Medical Association, in Wilkes-Barre, Pa.; "Phosphorus Deficiency in Cattle," delivered before an assembly of veterinarians in Philadelphia, Pa.; "The Protozoan Diseases of Dairy Cattle," before the World's Dairy Congress, in Syracuse, N. Y.; "The Tropical Diseases of Africa," before the faculty and students of the New York State Veterinary College, Ithaca, N. Y.

Three lectures were delivered at Harvard University Medical School, Boston, Mass., as follows: "Phosphorus Deficiency in Animals," "The Tropical Diseases of Africa," and "Diseases in Animals Caused by Toxic Plants." "Phosphorus Deficiency in Animals," was delivered at Rutgers Agricultural College, New Brunswick, N. J.; "Toxic Plants and Deficient Pasture as Causes of Animal Diseases in South Africa," at the Rockefeller Institute, New York City; "Animal Diseases of Warm Countries; Their Etiology and Prevention," Johns Hopkins University Medical School, Baltimore, Md.; "The Animal Plagues of South Africa," before the veterinary faculty and students of Ohio State University, Columbus, Ohio; "Phosphorus Deficiency in Animals," under the auspices of the Illinois Chapter of Sigma Xi, University of Illinois; "Phosphorus Deficiency in Animals," before seminar of Professor L. B. Mendell, Yale University, New Haven, Conn.

Sir Arnold addressed the North Central Iowa Veterinary Association, at Fort Dodge, on November 8, and was also scheduled for an address at the Iowa State College, Ames, Iowa, and one at the A. & M. College, College Station, Texas. He expected to sail from this country on November 22nd, *via* San Francisco.

## NECROLOGY

### GEORGE W. DUNPHY

Dr. George W. Dunphy passed away at his home in East Lansing, Sunday evening, December 16, 1923, after a lingering illness dating back over two years, during which time he had been bedfast almost continuously. He was in his 74th year, having been born September 2, 1850, at Niagara Falls, N. Y.

He was a graduate of the Ontario Veterinary College in 1880, the honor student of his class. He started practicing at Jackson, Mich., in partnership with Dr. S. Brenton. He later located at Quincy, Mich., where he established a very lucrative practice. In 1897 he was appointed State Veterinarian by Governor Pingree, and served until 1901. For several years he practiced at Coldwater, Mich. In 1904 he entered the service of Parke, Davis and Company, at Detroit, as Chief Veterinarian. When the Company decided to move their biological stables to larger quarters and away from the city, Dr. Dunphy was transferred to Rochester, and helped to develop the beautiful tract of 800 acres now known as Parkedale Farm. He remained in this connection until October 15, 1913, when he resigned to become State Veterinarian of Michigan again, under a reorganized State Live Stock Sanitary Commission. It was during this term of office that foot and mouth disease appeared in Michigan for the second time, and Dr. Dunphy was very much in the lime-light in his efforts to eradicate the disease. In 1921, ill health compelled him to resign as State Veterinarian.

Dr. Dunphy was at all times a prominent figure at veterinary gatherings in Michigan. He was a member of the State Board of Veterinary Medical Examiners, and on two occasions served as President of the Michigan State Veterinary Medical Association, the latter term in 1915-1916, in which year the American Veterinary Medical Association met in Detroit as the guests of the profession in the Wolverine State. In 1922, he was made a life member of the State Association. He was an honorary member of practically all of the local veterinary associations in the State.

Always deeply interested in control work, Dr. Dunphy took an active part in the United States Live Stock Sanitary Association, and served on practically all of the important committees

of this organization. In 1919 he was elected to the presidency of the Association.

In the American Veterinary Medical Association, Dr. Dunphy was a very active member at all times. He joined in 1893, and served as Resident Secretary for Michigan from 1900 to 1904 and from 1906 to 1907. He was twice a member of the Resolutions Committee, 1900-01 and 1908-09. He served on the committee on Intelligence and Education, 1901-02, and as chairman of this committee in 1918-19. In 1904 he was elected a vice-president, and the following year served on the Executive Committee. He was chairman of the Association of Veterinary College Faculties and Examining Boards, 1907-08, and served as a member of the first Committee on Veterinary College Investigation (1912).

Dr. Dunphy typified the class of veterinarian that is so rapidly passing. He belonged distinctly to the "old school" of rugged, resourceful practitioners who had to fight their battles under the tremendous handicap of limited college training and without the improved armamentarium of the more modern veterinary graduate. Through his associations, Dr. Dunphy always kept abreast of the times, and was ever ready to discuss the newer developments of veterinary science at the many meetings which he liked so well to attend.

Dr. Dunphy loved horses, and was considered one of the most skillful horseman in Michigan in his younger days. He was highly successful as a practitioner. Few men who have held the position of state veterinarian have ever kept in closer touch with the profession than did Dr. Dunphy. He frequently made long trips over the State, investigating outbreaks of different diseases, under all sorts of conditions and in all kinds of weather. He was devoted to his work, whatever it happened to be. He was kind to a fault, ever ready and more than willing to help a friend. He was an indomitable fighter, whenever he set out to accomplish anything, as those who have ever opposed him will testify. As an intimate acquaintance once said: "He is a good man to have on your side, but a mighty bad man to have against you."

During the more than two years that he was bedfast, his mind remained as clear as a bell, and nothing delighted him more than to have his old friends drop in for a chat and to reminisce a bit. He had a very retentive memory. Few men

have been more familiar with the veterinary history of the country, for the past forty years, than Dr. Dunphy.

He is survived by four children, one daughter and three sons, one of whom is Captain Charles B. Dunphy (K. C. V. C. '16), now stationed at Fort Benning, Ga., and one brother, Dr. Thomas Dunphy, of Croswell, Mich. Funeral services were held at East Lansing, December 19, and the interment was made at Quincy, his old home, the following day. Over forty veterinarians attended the services.

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### EDWARD M. SAIGEON

Dr. E. M. Saigeon, of Flint, Mich., died November 27, 1923, a victim of apoplexy. He was born in Coldwin Township, Erie County, New York, June 10, 1874. He entered the Ontario Veterinary College in 1895, and was graduated in 1899.

After having served for over two years as a veterinary surgeon in the Quartermaster Department of the U. S. Army in the Philippines, Dr. Saigeon returned to this country and located in Plainfield, Mich., in 1901, removing to Flint in 1904, where he practiced continuously until his death.

Dr. Saigeon was an Odd Fellow and a Modern Woodman. He was much admired and highly respected by his townsmen as a charitable and patriotic citizen, and he enjoyed the reputation of being a highly ethical practitioner at all times.

Dr. Saigeon married Miss Flora E. Smith in 1904. She survives him, with three daughters.

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### MORGAN BAXTER LAMB

Dr. Morgan B. Lamb died suddenly, October 4, 1923, at his home in Columbus, Ohio, at the age of 55 years. Dr. Lamb was graduated from Ohio State University in 1901. The same year he went to Washington State College, where he was an instructor in the College of Veterinary Science for one year. He then returned to Ohio to accept a position under Dr. Paul Fischer, then State Veterinarian. He was later made Assistant State Veterinarian.

During the World War, Dr. Lamb served as second lieutenant, and later as captain, in the Veterinary Corps. Dr. Lamb joined the A. V. M. A. in 1902. He was an honorary member of the Alpha Psi Fraternity. He is survived by his widow, a sister and a brother.

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**CURTIS LOZELLE FRY**

Dr. Curtis L. Fry, of Denton, Texas, died at Kansas City, Mo., August 6, 1923. He was a graduate of Ohio State University, class of 1917. Immediately after graduation he entered the Veterinary Reserve Corps and was stationed at San Francisco. At the time of his death he held a commission as first lieutenant in the Veterinary Officers' Reserve Corps. He was a member of the Alpha Psi Fraternity.

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**HORATIO S. WENDE**

Dr. H. S. Wendé, late of Tonawanda, N. Y., died July 28, 1923, at the Buffalo General Hospital, following an operation for gallstones. He had been ill but a short time.

Born in Millgrove, N. Y., February 4, 1864, Dr. Wendé received his early education in the public schools and his veterinary training at the Ontario Veterinary College, graduating with the class of 1886.

Dr. Wendé was a charter member of the Western New York Veterinary Medical Association, a member of the New York Veterinary Medical Society and the American Veterinary Medical Association, which he joined in 1913. He held the office of State Veterinarian for Western New York, having been appointed twice under Commissioner Houston. He served as judge at the State Fair Horse Show for several years. Dr. Wendé was one of the best known veterinarians in the Empire State.

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**MRS. A. L. HIRLEMAN**

Mrs. Therese Wentzel Hirleman, wife of Dr. A. L. Hirleman, B. A. I. Inspector in Charge of Hog Cholera Control Work and Tuberculosis Eradication in Georgia, died at Atlanta, Ga., November 24, 1923, after a lingering illness of almost six months. She was born in Cincinnati, Ohio, in 1873, and the body was taken back to her birth place for interment. She is survived by her husband, one son, her mother and two brothers. The sympathy of Dr. Hirleman's many friends, both in and outside the profession, goes out to him in his bereavement.

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Our sympathy is extended to Dr. F. Carter Overton, whose father, Floyd C. Overton, was killed at Adams, N. Y., on December 5, 1923.

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## MARRIAGES

Dr. Henry Harrison Haigh (U. P. '11) to Miss Martha Shinn Smith, at Trenton, N. J., October 18, 1923.

Dr. Ralph A. Hendershott (O. S. U. '17) to Miss Elizabeth Irene Connor, both of Columbus, Ohio, September 25, 1923.

Dr. Robert Lowell McClarren (O. S. U. '22), of Delta, Ohio, to Miss Laura Tussing, of Reynoldsburg, Ohio, August 22, 1923.

Dr. and Mrs. John W. Adams, of Swarthmore, Pa., announce the marriage of their daughter, Alice Naomi Adams, to John Burriss West, at Trinity Church, Swarthmore, Pa., October 22, 1923.

## BIRTHS

To Dr. and Mr. J. T. Doran, of Chappell, Nebr., a daughter.

To Dr. and Mrs. W. A. Wilkins, of Centralia, Ill., a son, October 20, 1923.

To Dr. and Mrs. A. B. White, of Grove City, Ohio, a daughter, September 23, 1923.

To Dr. and Mrs. E. Bruce, of Orchard, Nebr., a son, Ernest Junior, October 23, 1923.

To Dr. and Mrs. George W. Grim, of Ardmore, Pa., a son, William Webster, November 12, 1923.

To Dr. and Mrs. Ward Giltner, of East Lansing, Mich., a son, David, November 19, 1923.

To Dr. and Mrs. H. M. Hans, of Ponca, Nebr., a daughter, Severn Beata, December 11, 1923.

To Dr. and Mrs. J. L. Ruble, of Quitman, Ga., a daughter, Betty Yvonne, December 17, 1923.

To Dr. and Mrs. V. W. Yates, of Dyersburg, Tenn., a son, Charles William, September 25, 1923.

To Dr. and Mrs. Malcolm J. Harkins, of Conshohocken, Pa., a son, Francis Joseph, October 22, 1923.

To Dr. and Mrs. J. F. Shigley, of State College, Pa., a daughter, Dorothy Jane, November 24, 1923.

To Dr. and Mrs. H. H. Yocum, of Freelandville, Ind., a daughter, Betty Jean, September 14, 1923.

To Dr. and Mrs. M. D. Strong, of Stromsburg, Nebr., a son, Kenneth Dent, September 20, 1923.

## PERSONAL

Capt. Chas. B. Dunphy (K. C. V. C. '16) is stationed at Fort Benning, Ga.

Dr. F. G. Roth (Ind. '17) of Crown Point, Indiana, is County Veterinarian.

Dr. Nicholas Rectenwald, of Pittsburgh, Pa., has recovered from his serious illness.

Dr. G. A. Handley (Chi. '04) is again back in Ohio. He has located at Jackson.

Dr. J. W. Huston (K. C. V. C. '18) is stationed at Des Moines, Iowa, 111 Federal Bldg.

Dr. J. R. Porteus (Corn. '18) has been transferred from Trenton, N. J., to Middletown, Del.

Dr. A. L. Faunce (Chi. '05) has been transferred from Kansas City, Kans., to Franklin, Nebr.

Dr. Harry J. Little (U. P.) of Williamsport, Pa., has been elected sheriff of Lycoming County.

Dr. Emil Krennek (K. C. V. C. '16), formerly at Augusta, Ga., is now at Morristown, Tenn.

Dr. R. H. Schrecengost (McK. '14) has removed from Swea City, Iowa, to Armstrong, same state.

Dr. Robert W. Pechin (U. P.) was elected Recorder of Deeds of Chester County (Pa.) at the recent election.

Dr. Robert L. Galt (U. P. '23) of Wuaryville, Pa., is secretary of the Conestoga Veterinary Club, of Pennsylvania.

Dr. A. E. George (Mich. A. C. '20) of Perry, Mich., has the rank of first lieutenant in the Michigan National Guard.

Dr. C. E. Lucas (Chi. '09) of Olney, Ill., is a breeder of Hereford cattle and one of the proprietors of Mash Creek Farm.

Dr. E. H. Riley (Geo. Wash. '11) is Associate Adviser of the Marhsall-Putnam Farm Bureau, located at Henry, Ill.

Dr. E. A. Rile (U. P. '06), of Bluebell, Pa., is constructing and equipping a canine hospital for his small animal patients.

Dr. J. E. Weinman (K. C. V. C. '13) has left St. Joseph, Mo., and located in Hutchinson, Kansas, at 137 E. 11th Street.

Dr. Jaime Bague (U. P.) is Sub-Commissioner of Agriculture and Labor of Porto Rico with headquarters at San Juan.

Dr. P. J. Huffman (K. C. V. C. '09), formerly in the meat inspection service at Urbana, Ohio, is located in Wheeling, W. Va.

Dr. Thomas W. Boman (A. P. I. '18) has been transferred from Moultrie, Ga., to Washington, N. C., in the B. A. I. service.

Lt. J. F. Crosby (Corn. '15) has been transferred from Carlisle Barracks, Pa., to the Army Medical Center, Washington, D. C.

Dr. Frank E. Allen (Chi. '11) has been transferred from Olympia, Wash., to Sacramento, Calif., in tuberculosis eradication work.

Dr. J. R. Houchins (U. S. C. V. S. '17) has changed his address from Red Springs, N. C., to 320 Agriculture Bldg., Raleigh, N. C.

Dr. Wm. J. Brown (Chi. '15) has been transferred from Mason City, Iowa, to Chicago, in the B. A. I. meat inspection service.

Dr. and Mrs. Joseph Hawkins (Ont. '71), of Detroit, Mich., celebrated their fiftieth wedding anniversary on December 23, 1923.

Lt. Col. R. Vans Agnew (Ont. '95) has been transferred from San Francisco to the Philippine Dept., with headquarters at Manila.

Dr. Robert N. Ashley (K. C. V. C. '08) has been transferred from Albuquerque, N. Mex., to South St. Paul, in the B. A. I. service.

Dr. O. A. Taylor (Mich. A. C. '15) of East Lansing, Mich., has been promoted to the rank of major in the Michigan National Guard.

Dr. Howard H. Custis (U. P. '07), who has been assisting Dr. Geo. S. Fuller, in Philadelphia, for several months, has located in Oxford, Pa.

Dr. R. Z. Mays (O. S. U. '20) has been transferred from Clemson College, to Columbia, S. C. His address is 901 Liberty National Bank Bldg.

Dr. T. S. Mason, of Tunica, Miss., recently met with a serious loss, occasioned by a fire which destroyed his home and all his household goods.

Dr. J. W. G. Hansen (Gr. Rap. '06), of Greenville, Mich., takes a very active interest in the Central Michigan Shorthorn Breeders' Association.

Dr. George E. Jacobi (O. S. U. '20), who has been Instructor in Veterinary Pathology at Iowa State College, moved to College Park, Md., January 1.

Dr. J. F. Park (A. P. I. '12) has been transferred from West Plains, Mo., to Topeka, Kansas, as B. A. I. Inspector-in-Charge, on Virus-Serum Control.

Dr. Leonard W. Goss (O. S. U. '05), of the Veterinary Faculty of Ohio State University, has received a commission as Major in the Officers' Reserve Corps.

Dr. Horst Schreck (Ind. '16) has formed a partnership with Dr. F. C. Schmidt, of Portland, Oregon, under the name of the Portland Dog and Cat Hospital.

Major Louis A. Beltran y Morena (U. P. '08), of Havana, Cuba, was in Philadelphia during November. While in the Quaker City he paid a visit to his alma mater.

Dr. John H. Winstanley (U. P. '10) attended the Farm Products Show, at Greencastle, Pa., in November, with an exhibit by the Pennsylvania Bureau of Animal Industry.

Dr. B. W. Conrad (K. C. V. C. '07) was a visitor in Chicago, in December, attending the meetings of the A. V. M. A. Executive Board and the U. S. Live Stock Sanitary Association.

Dr. R. P. Gingerich (Chi. '13), of Bloomington, Ill., has retired from active practice for a while. He expects to reside in California for a year and incidentally get back to his usual good health.

Dr. Thomas E. LeClaire (Laval '90), of Calgary, Alta., left shortly after Christmas for his winter home in Los Angeles, Cal. The Doctor expects to return to Calgary about the 15th of May.

Dr. Harry B. Cox (Amer. V. C. '95), of Philadelphia, Pa., was largely responsible for the success of a work horse parade held recently in the Quaker City. Twelve hundred horses were entered.

Dr. S. K. Andreassen (McK. '16), who has been practicing in Barnesville, Minn., for a number of years, has purchased the hospital and practice of the late Dr. L. G. Hart, Sr., at Chippewa Falls, Wis.

Dr. J. E. McCoy (K. S. A. C. '09) has relinquished his practice in Twin Falls, Idaho, and accepted a position as Instructor in Veterinary Medicine on the faculty of the Washington State College, at Pullman.

Dr. F. Sager (Corn. '17) has been transferred from Camp Devens to Fort Leavenworth. He recently enjoyed an extended vacation in Southern New York, while on leave, including a visit to Cornell University.

Dr. John H. Winstanley (U. P. '10) of the Pennsylvania Bureau of Animal Industry, supervised the exhibition of pathological specimens shown at the Farm and Garden Products Show, at Greencastle, in November.

Dr. H. N. Strader (Iowa '20), who has been stationed at New Hampton, Iowa, removed to DeWitt, Iowa, on January 1, to take charge of tuberculosis eradication work in Clinton County under the county-area plan.

Dr. John J. Mimnaugh (U. P. '23), of Long Island City, N. Y., and Frederick A. Grenfell (Geo. Wash. '14), of Washington, D. C., are taking special work at the University of Pennsylvania School of Veterinary Medicine.

Dr. Harry F. Kern (Colo. '11), who has been in the Philippine service for several years, has been transferred to the U. S. Bureau of Animal Industry, and is now in tick eradication work, with headquarters at Hertford, N. C.

Dr. T. E. Munce (U. P. '04) State Veterinarian of Pennsylvania, discussed the subject of "The Eradication of Tuberculosis in Animals," at the Farmers' Institute, in connection with the Farm and Garden Products Show, at Greencastle, Pa.

Dr. F. Torrance (Mont. '82), formerly Veterinary Director-General of Canada, is now a member of the teaching staff of the Ontario Veterinary College, being connected with the Department of Physiology, Bacteriology and Hygiene.

Dr. B. M. Underhill (U. P. '95), on Dec. 10, 1923, gave a lecture before the Delaware County (Pa.) Institute of Science, on "The Theories of Immunity." Dr. Underhill also represented the Institute at the Centenary Celebration of the Birth of Joseph Leidy, held in Philadelphia, recently.

Dr. E. T. Baker (O. S. U. '09) of Moscow, Idaho, continues to edit *The Two Forty-Niner*, the official organ of B. P. O. E. No. 249. In a recent number the prophecy was made (confidentially) that the price of wheat will either advance, remain stationary or take a slump. Very much Bakeresque.

Dr. William Sheppard (R. C. V. S.-London '70), for many years located at Sheepshead Bay, New York, has moved to Florida. He is located at De Land. Mrs. Sheppard will continue to raise Pekingese. Her Minoru Kennels boast such outstanding individuals as Pun Chun of Minoru, Star of Minoru and Pao Wong.

Dr. D. H. Udall (Corn. '01) attended the recent meeting of the U. S. Live Stock Sanitary Association, as a delegate from the New York State Veterinary Medical Society, and in the interests of the practitioners of the Empire State relative to tuberculin testing. Needless to say he gave a good account of himself. Speaking briefly, he got what he went after.

Dr. L. L. Glynn (N. Y.-Amer. '08) was recently appointed a member of the Colorado Veterinary Medical Examining Board by Governor Sweet. Dr. Glynn served as House Surgeon in the New York American Veterinary College Hospital for two years and then entered the United States Bureau of Animal Industry, resigning in 1918 to take up general practice in the San Luis Valley in Colorado. He is now located at Monte Vista, Colo., in general practice.

